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VOLUME XXVI

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THE
QUARTERLY JOURNAL
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ECONOMICS

NOVEMBER, 1911

THE PROGRESS OF EUGENICS

SUMMARY

I. The Beginnings of Eugenics. Plato, 2. — The *Origin of Species* and its influence, 3. — Galton and the modern eugenics movement, 4. — *Hereditary Genius*, 6. — Greg, 8. — Darwin, 10. — de Candolle, 12. — Galton's *English Men of Science*, 13. — *Inquiries into Human Faculty*, 15. — *Natural Inheritance*, 16. — The revival of eugenics. Karl Pearson, 17. — Galton's later writings, 19. — *Eugenics: Its Definition, Scope, and Aims*, 20. — II. Eugenic Investigations. Heredity, 24. — Pearson's biometric studies, 25. — The Francis Galton Laboratory for National Eugenics, 26. — The Eugenics Laboratory publications, 27. — The relative influence of heredity and environment, 29. — Criticism of the biometric method, 31. — Biometry v. Mendelism, 31. — Mendelian methods in eugenics, 33. — Early eugenic ideas in America, 33. — The American Breeders' Association, 35. — The Eugenics Record Office and its work, 36. — III. The Eugenic Program. The popularization of eugenics, 39. — The Eugenics Education Society, 39. — International organizations, 39. — Applied eugenics: Constructive v. restrictive methods, 41. — Attempts to restrict the increase of undesirables, 45. — IV. Recent eugenic literature. Saleeby's *Parenthood and Race Culture*, 47. — Whethams' *The Family and the Nation*, 48. — Kellicott's *The Social Direction of Human Evolution*, 51. — Davenport's *Race Improvement through Eugenics*, 53. — Eugenics in Europe, 57. — *Rassenbiologie*, 58. — The "Natur und Staat" series, 59. — V. The Rationale of Eugenics. The lack of an adequate social philosophy in prevalent eugenic opinion, 61. — Eugenics in relation to natural selection, 62. — Exceptional ability v. general betterment, 63. — The outlook for eugenics, 66.

Unless many signs fail, the study of eugenics has established its claim to recognition among the hopeful

applications of science in social reform. Almost suddenly, within the last few years, the popular apathy which it encountered for half a century has given way to widespread attention and interest, mingled with not a little of that irresponsible enthusiasm which a novel turn of thought provokes. The spirit of eugenic inquiry has spread beyond the country of its origin and prompted investigations undertaken with a scholarly seriousness of purpose which bespeaks for them the critical estimate due to scientific work. At this turning-point in the history of eugenics, the recent death of Sir Francis Galton ¹ seems to mark off the period of beginnings, the story of which is so essentially the story of his own life, from the period of wider activity that has now set in. Before the beginnings are forgotten, a review of what has already been accomplished may help to appraise the promise of usefulness which the eugenic movement affords.

I

The idea of a conscious selective improvement of the human breed is not new. Like many another stimulating thought it was clearly uttered long before the time when its fresh expression found the popular mind in the ready and impressionable state which makes possible a far-reaching thought movement. Twenty-three hundred years ago the political dialogues of Plato outlined a policy of controlling marriage selection and parentage for the general good of society; and declared that the statesman who would advance the welfare of his citizens should, like the fancier of

¹ Galton was knighted in 1909, in tardy recognition of his distinguished services to science. In the following pages the title is not prefixed to his name except when the reference is to events subsequent to the date of his knighthood.

birds, or dogs, or horses, take care to breed from the best only.¹ Perhaps it was natural that this idea should have come early to the mind of a man whose experience was with the compact citizen class of a city-state, and whose ideal community was not so large but that each citizen might know how his fellows lived; for it has been remarked that at the present day there is exceptional scrutiny of marrying and giving in marriage among peoples or social classes so isolated, clannish, and inbred that they must necessarily have discovered in their own experience the virtue of good stock and the fate that follows the progeny of degeneracy and constitutional disease. But Plato's project was too fantastic for his time. In following centuries the laws of the Roman Empire, the doctrines of the Church, and the policies of mercantilist states, in so far as they took cognizance of population problems, kept count in terms of soldiers, or souls, or laboring and tax-paying subjects, and for the most part overlooked the inborn differences of men. Even at the beginning of the last century, when the discussion of population problems reached a development quite unprecedented, the quality of the population was still almost ignored in the prevailing concern about questions of mere numbers.

The present eugenics movement may be traced back definitely to the decade beginning with the year 1865, and more generally to the thought-reaction which followed the publication of Darwin's *Origin of Species* in 1859. The new biological doctrines inevitably drew attention to the selective significance of inborn differences, in human beings as in other living forms. Nor was the existence of such differences among men likely to be overlooked by the reactionary

¹ Republic, 459; Laws, 773; and elsewhere.

adherents of a waning aristocratic régime, confronted with the growing prominence of the masses, whose influence was enlarging with their new accession of political privilege and with the more gradual course of industrial change. The stress which Darwin had laid on the cumulative selection of qualities transmitted by heredity put an end to that placid indifference with which the unequal increase of different social classes had been regarded. Even more positively it dispelled the illusions of those who had rejoiced in the relative infertility of the well-to-do, hailing it either as the sign of prudence in at least some places, or as a providential compensation of the hardships of poverty by vouchsafing to the poor an untroubled career of procreation.

The specific starting-point of the eugenics literature is to be recognized in two articles on "Hereditary Talent and Character," written by Francis Galton and published in Macmillan's Magazine for June and August, 1865. Impressed by the plasticity of the physical forms of animals under the breeder's selection, Galton here announced his purpose of showing, more pointedly than had been attempted before, that the mental qualities of men are equally under control.¹ He was encouraged in this, as he himself records,² by the influence of *The Origin of Species*; tho the suggestion of the idea had come to him from his own observation of instances of apparent heredity among his contemporaries at Cambridge. Now, he not only repudiated the prevalent view that sons of great men are usually stupid: he went on to show by a mass of biographical evidence how strikingly the frequent occurrence³ of

¹ These words are substantially those of the opening paragraph of the first article, Macmillan's Magazine, vol. xii, p. 157.

² *Memories of My Life*, London, 1906, p. 288.

able sons of able men indicates that mental qualities, quite as much as physical traits, are subject to the principles of natural inheritance. Doubtless, the son of an eminent man may be favored by superior opportunities. Advantageous associations, as well as inherited capacity, may aid his career. All this Galton was quite willing to admit. But he did not regard established position as the chief reason for the recurrence of talent in distinguished families; and to make his argument more conclusive he avoided the examples of statesmen and generals, who might be thought particularly the creatures of privilege, and sought his facts "in the more open fields of science and literature."¹ His inferences from these facts were eagerly hopeful. "How vastly would the offspring be improved," he exclaims, "supposing distinguished women to be commonly married to distinguished men, generation after generation, . . . according to rules, of which we are now ignorant, but which a study of the subject would be sure to evolve."² "If a twentieth part of the cost and pains were spent in measures for the improvement of the human race that is spent on the improvement of the breed of horses and cattle, what a galaxy of genius might we not create."³ Half jocosely, he proposed the endowment of the marriages of, say, ten pre-eminently marriageable couples, chosen out of the whole nation, after an enlightened examination, on the basis of their qualifications for parenthood. Seriously, he expressed the belief that if the importance of race improvement were recognized, and if the theory of heredity were understood, some way would be found to carry the improvement into effect.⁴ The

¹ *Macmillan's Magazine*, vol. xii, p. 161.

² *Ibid.*, p. 164.

³ *Ibid.*, p. 165.

⁴ *Ibid.*, p. 320.

articles were essentially sanguine, — enthusiastic sketches of what might result from the spread of their new idea.

Four years later these preliminary sketches developed into a book, — *Hereditary Genius*, published in 1869. The main thesis, that great ability is hereditary, is here substantially unaltered; supported, now, by abundant genealogical material, which nearly fills the book with pedigrees of judges, statesmen, the English peerage, commanders, literary men, men of science, poets, musicians, painters, divines, the senior classics of Cambridge, — even oarsmen and wrestlers, as examples of the ability of the muscles rather than of the mind. But if the theme is in the main the same, the manner of presentation is notably changed. Galton's characteristic originality of thought is reinforced by his equally characteristic attention to scrupulous precision of method. The quantitative treatment, which he has since called "actuarial," marks the work, opening the way for much of the more recent mathematical analysis of heredity problems. One finds a nice classification of the grades of ability; an ingenious notation; and the especially significant introduction of the law of deviation from an average — suggested, as it appears, by Quetelet's *Lettres sur la théorie des probabilités*, and so applied, in determining the normal frequency of the occurrence of distinguished talent, that the exceptional proportion of eminent men among the sons of eminent fathers mathematically demonstrates exceptional recurrence of ability. The natural consequence of such careful method is a more guarded attitude with reference to putting into practice, for ends of social reform, the principles just restated and reaffirmed. Yet the enthusiasm of the magazine articles may well have

been less eloquently convincing of the possibility of such reform than the book's impressive chapter on Influences that Affect the Natural Ability of Nations. For in this the appeal is not merely to fanciful influences which might be exerted, but to the actual modifications of human quality which stand recorded in history, or work themselves out in the common-place happenings of our own every day. Celibacy of the intellectual classes is condemned anew; the cloisters and nunneries of the Middle Ages and the academic celibacy of present times alike are proven apt means to the elimination of superior intellect. The irreparable debasement of type which followed the course of the Inquisition in Spain — a topic already touched upon by Lyell in his *Principles of Geology*¹ — yields a germane and telling argument. Less dramatic tho perhaps more important is the lesson drawn from a suggestion of four years before, here developed into a classic demonstration, that the social group or nation within which the interval between generations is relatively long will be outnumbered and overcome, through mere inferiority of increase. But it is impossible adequately to summarize a book of which Charles Darwin wrote, "I do not think I ever in all my life read anything more interesting and original."² The book is too characteristic for summary — too full of the personality of a great thinker. At best this bare review of its method, its data, and its conclusions will show that Galton's first essays in the subject he was later to call eugenics had greatly expanded. They had in fact grown to the magnitude of a master-work, which has served as a point of departure for his own later writings and for most of the work of others in the field which he had thus marked out.

¹ 10th Ed., 1868, vol. II, p. 489.

² Galton, *Memories of My Life*, p. 290.

A second pioneer of eugenics had been revealed, during the interval between the appearance of Galton's magazine articles and the publication of *Hereditary Genius*, in the person of William Rathbone Greg, already for years a well-known writer on economic and political subjects. Philanthropic in sympathies and fair in presentation, Greg was chiefly distinguished by an attitude of keen prophetic criticism of the tendencies of his time, and felt a probably undue concern at the increase of democratic and popular influence in public affairs. So it was that he became aware of the menace of adverse selective influences working through the unequal rates of increase of different elements in the population, and wrote, quite independently, and in ignorance of Galton's kindred writings,¹ a brilliant article, "On the Failure of 'Natural Selection' in the Case of Man," which was published in *Fraser's Magazine* for September, 1868, and, with slight alteration, became the chapter on Non-Survival of the Fittest in a subsequent book, — *Enigmas of Life*.² For races and nations, he argued, the principle of the survival of the fittest holds good; but as regards individuals "the indisputable effect of the state of social progress and culture we have reached . . . is to counteract and suspend the operation of that righteous and salutary law. . . ." ³ We keep alive the weak and defective; by our institution of property we subsidize and perpetuate the incompetency which may inherit but could not produce. The rich and the poor, disadvantaged by opposite extreme circumstances of excess and privation, propagate freely. The prudent members of the intermediate class, "most qualified and deserving

¹ Cf. Greg, *Enigmas of Life*, p. 115.

² London, 1872.

³ *Fraser's Magazine*, vol. lxxviii, p. 356.

to continue the race, are precisely those who do so in the scantiest measure.”¹ In a noteworthy passage Greg outlines a Utopian reversal of prevailing conditions:

A republic is *conceivable* in which paupers should be forbidden to propagate; in which all candidates for the proud and solemn privilege of continuing an untainted and perfecting race should be subjected to a pass or a competitive examination, and those only be suffered to transmit their names and families to future generations who had a pure, vigorous, and well-developed constitution to transmit. . . . But no nation — in modern times at least — has ever yet approached² this ideal; no such wisdom or virtue has ever been found except in isolated individual instances. . . . The face of the leading peoples of the existing world is not even set in this direction — but rather the reverse.”³

However, Greg was no Utopian. To him this artificial imposition of eugenic conditions seemed obviously impracticable, and its object perhaps not worth the cost. Hope was from within. “We can only trust to the slow influences of enlightenment and moral susceptibility, percolating downwards and in time permeating all ranks. We can only watch and be careful that any other influences we do set in motion shall be such as, when they work at all, may work in the right direction.”⁴

¹ *Ibid.*, pp. 360–361.

² In *Enigmas of Life* the passage (pp. 112–113) reads “approached or aimed at.”

³ *Fraser's Magazine*, vol. lxxviii, pp. 361–362.

⁴ *Ibid.*, p. 362. A fusillade of comments followed the publication of Greg's article. On the whole, however, they were unimportant. In the columns of the *Spectator* two or three contributions turned the discussion aside into the subject of the superior moral elevation which results from such modifications of the selective process as Greg had disapproved. A reviewer in the *Quarterly Journal of Science* (vol. vi, pp. 152–153; London, January, 1866) dismissed Greg's argument as fallacious on the ground that among civilised men the struggle for existence is between social groups and not between individuals. Much the same answer was given by E. Ray Lankester in his essay *On Comparative Longevity in Man and the Lower Animals* (London, 1870; pp. 128–129, note). Lawson Tait, in the *Dublin Quarterly Journal of Medical Science* (vol. xlvii, pp. 102–113; February, 1869), discussed, with more freshness of view, the implication that the work of physicians in curing disease only favored degeneration of the race by prolonging the lives of inferior individuals.

Still a third distinguished personage definitely entered into the discussion of race improvement when Darwin at this time incorporated a passage on Natural Selection as affecting Civilised Nations into his *Descent of Man*, published in 1871 — two years after *Hereditary Genius* and a year before *Enigmas of Life*. His discussion is not highly original: he states¹ that most of his remarks are taken from Greg, Wallace,² and Galton. But it is interesting to note how far the author of the principle of natural selection adopts into his own thought the ideas which his thought had provoked. Moreover, in at least one point he appears to differ with Galton: his emphasis on the superior selective importance of slight variations contrasts rather sharply with Galton's primary concern for exceptional ability.³ He appreciates, too, that agencies of favorable as well as of unfavorable selection are normally in operation. Malefactors are executed or confined. Suicide and violence eliminate some defective or unruly individuals. Profligacy sterilizes itself by disease. Ability favors the support of a family. Yet if these and other factors, recognized or as yet unknown, "do not prevent the reckless, the vicious, and otherwise inferior members of society from increasing at a quicker rate than the better class of men, the nation will retrograde, as has occurred too often in the history of the world."⁴

Two years later Galton was heard from again. In an essay on "Hereditary Improvement," printed

¹ Vol. 1, p. 168.

² The Origin of Human Races and the Antiquity of Man deduced from the theory of Natural Selection. *Anthropological Review*, vol. II, pp. clviii-clxx, 1864.

³ "In the case of corporeal structures, it is the selection of the slightly better-endowed and the elimination of the slightly less well-endowed individuals, and not the preservation of strongly-marked and rare anomalies, that leads to the advancement of a species. So it will be with the intellectual faculties. . . ." (Vol. 1, p. 172.)

⁴ Vol. 1, p. 177.

in *Fraser's Magazine* for January, 1873, he maintained "that it is feasible to improve the race of man by a system which shall be perfectly in accordance with the moral sense of the present time."¹ As the foundation of this system he aimed "to build up . . . a sentiment of caste among those who are naturally gifted," and thus, within each existing social group, to draw together in the solidarity of a new and exclusive class consciousness the individuals of greatest merit for what he now tentatively called "viriculture."² The achievement of this result must come gradually. However familiar the view had become that the artificial disposition of wealth, the destructive action of town life upon the ablest stock,³ and the many other unfavorable influences of civilization, were working, through heredity, for human degeneration, Galton did not expect his scheme "to flourish until the popular belief shall have waxed several degrees warmer."⁴ But intelligence and a religious sense of duty were alike urgent that a beginning be made.

I propose as the first step, and the time is nearly ripe for it, that some society should undertake three scientific services: the first, by means of a moderate number of influential local agencies, to institute *continuous* enquiries into the facts of human heredity; the second, to be a centre of information on heredity for breeders of animals and plants; and the third to discuss and classify the facts that were collected.⁵

Primary reliance was thus placed on the increase and diffusion of scientific knowledge with the confident expectation that if once the populace were convinced of the import of heredity, "quite as many social

¹ *Fraser's Magazine*, N. S., vol. vii, p. 116.

² *Ibid.*, p. 119.

³ Cf. Galton's contemporary paper on *The Relative Supplies from Town and Country Families to the Population of Future Generations*, *Journal of the Royal Statistical Society*, vol. xxxvi, pp. 19-26, March, 1873.

⁴ *Fraser's Magazine*, N. S., vol. vii, p. 123.

⁵ *Ibid.*, p. 124.

influences as are necessary will become directed to obtain the desired end.”¹

Thus far the forerunners of eugenics had been Englishmen; but in this same year 1873 an important contribution came from the Continent in the *Histoire des sciences et des savants*² by a distinguished Swiss botanist, the younger Alphonse de Candolle. This book, like *Hereditary Genius*, is based on the results of an inquiry into the relationships of eminent men. But de Candolle confined his attention to men of science, and took for his criterion of eminence membership in the leading honorary scientific societies. Cases of the close relationship of these scientists he found strikingly frequent. Yet his conclusions were not altogether in accord with the conclusions of Galton: in fact, at first sight they seem flatly contradictory. To heredity, properly speaking, he attributed little effect except in the case of the mathematical sciences.³ The preponderant influences appeared to be education and the example and counsel of the distinguished parents.⁴ But closer examination of what is meant by “heredity properly speaking” shows that de Candolle was more in harmony with Galton than might have been supposed. Outside of the talent for mathematics he believed, to be sure, that specialized ability is but slightly hereditary. Celebrity, which

¹ Ibid., p. 125. At the close of the article Galton unluckily indulged in a vision of the ultimate results of his project. His picture of a class of the praised and privileged fit, superposed on a population of the rejected, is one which we may rejoice to believe impossible, as well as unjustified by an intelligent interpretation of the forces which he would set at work. If this forecast be ignored, the article agrees in large measure with the best eugenic opinion of the present day.

² *Histoire des sciences et des savants depuis deux siècles suivie d'autres études sur des sujets scientifiques, en particulier sur la sélection dans l'espèce humaine.* Geneva, 1873.

³ Cf. pp. 107-108. This and subsequent citations refer to the first edition.

⁴ P. 101.

implies both particular aptitude and favorable circumstances, is still less controlled by heredity.¹ But generalized capacity, and especially general moral character, are undoubtedly inherited.

Ce n'est pas, comme on voit, nier l'influence de l'hérédité, c'est la réduire à quelque chose de très-général, compatible avec la liberté de l'individu, et pouvant fléchir ou se modifier suivant toutes les influences subséquentes dont l'action augmente à mesure que l'enfant devient homme.²

Plainly de Candolle was less convinced of the inheritance of genius than Galton had been. In fact, he expressly criticised the extreme conclusions which Galton drew.³ Yet he believed sufficiently in the heredity of human qualities to consider the possibility of improvement by artificial selection and to remark the appearances of degeneration due to selective causes like war, medicine, and unequal increase of rich and poor, which conserve the worse rather than the better types. But altho he thus discussed artificial selection, he conceived it to be for practical purposes non-existent or illusory: marriages of the unfit can hardly be prevented; or, if they are in form prevented, they are likely to give way to illegitimacy. The influence of law or of religion he did not deny, but he classed it with the factors of natural, and not of artificial, selection. Thus, tho he seemed inclined to belittle both the power of heredity and the means by which others hoped it might be made preponderatingly a power for good, his skepticism in each case was less extreme in reality than in appearance.

The reaction of de Candolle's views upon the work of Galton was immediate and unmistakable. A brief article "On the Causes which operate to create Scien-

¹ P. 228.

² P. 107.

³ Cf., e. g., pp. 243, 281, 280.

tific Men," which Galton contributed to the Fortnightly Review for March 1, 1873,¹ was in effect a review of the *Histoire des sciences et des savants*. "I propose," he wrote on this occasion, "to consider M. de Candolle as having been my ally against his will, notwithstanding all he may have said to the contrary." But Galton was not satisfied merely to contend in a review that de Candolle's work was an argument more telling than its author had known in favor of the inheritance of ability. Characteristically he set about further investigations of his own. Convinced that a more minute study of the antecedents of scientific men would establish the superior importance of heredity as contrasted with education, he prepared a searching questionnaire which he sent to 180 scientists of reputation. The results of his study of more than a hundred replies were published the following year in his book entitled *English Men of Science: their Nature and Nurture*.² In form this compilation is reminiscent of the descriptive chapters in *Hereditary Genius*: a careful and circumstantial statement of the relationships of the eminent men under investigation, amplified by a correspondingly minute scrutiny of any influences of experience and training, as well as of ancestral qualities, which might explain the peculiarity of scientific tastes and abilities. The result, in Galton's mind, was further affirmation of the supremacy of nature over nurture³ — of inheritance over training — so far as the two are separable. "I am confident," he wrote, in the preface, "that one effect of the evidence here collected will be to

¹ N. S., vol. xiii (O. S. xix), pp. 345-351.

² London, 1874.

³ "Nature is all that a man brings with himself into the world; nurture is every influence from without that affects him after his birth" (p. 12). The distinction between nature and nurture had already been made in the article of 1873 on Hereditary Improvement, p. 116.

strengthen the utmost claims I ever made for the recognition of the importance of hereditary influence.”¹

One decade had produced all these writings. Clearly, the beginnings of eugenics were congenial to the thought of that period. Yet what was written seems to have been often, as in the cases of Darwin and Greg, an episode, brilliant but without direct continuance, in the course of other work. Apparently demonstration of selective influences reacting on the quality of the population seemed for the time rather to stimulate the new taste for biological speculation than to appeal strongly to persons practically concerned with human degeneracy or with measures of human improvement. “Popular feeling was not then ripe to accept even the elementary truths of hereditary talent and character, upon which the possibility of Race Improvement depends. Still less was it prepared to consider dispassionately any proposals for practical action.”² Even Galton, whose long span of consistent intellectual activity is the closest link between that early outburst of eugenic ideas and the reawakened eugenic movement of the present, “laid the subject wholly to one side for many years.”³

The interim between 1874 and 1901 was, however, too prolonged to pass without some new evidence of Galton's interest in eugenics. During this period he published, among other works, *Inquiries into Human Faculty and its Development* (1883), and *Natural Inheritance* (1889). Each has an important bearing on his later writing.

The *Inquiries into Human Faculty* gave eugenics its name.

¹ Pp. vi-vii.

² Galton, *Memories of My Life*, p. 310.

³ *Ibid.*, p. 310.

. . . We greatly want a brief word to express the science of improving stock, which is by no means confined to questions of judicious mating, but which, especially in the case of man, takes cognisance of all influences that tend in however remote a degree to give to the more suitable races or strains of blood a better chance of prevailing speedily over the less suitable than they otherwise would have had. The word *eugenics* would sufficiently express the idea; it is at least a neater word and a more generalised one than *viriculture*, which I once ventured to use.¹

Nor was this coining of a term the only conspicuous contribution to eugenics which the book contained. For Galton here reiterated his belief "that human eugenics will become recognised before long as a study of the highest practical importance";² he considered, in a passage more interesting for its doubts than for its conclusions, the menace of loss of stamina through close breeding of human strains;³ and he maintained the possibility of some system of marks for ancestral and personal merit, on the basis of which endowments, portions, or adoption might be made available for persons of meritorious stock.⁴ Finally, in the closing words of the book,⁵ he foreshadowed the religious sanction for eugenic conduct which has characterized some of his most recent statements of eugenic principles.⁶

Natural Inheritance was essentially a study of the general biological principles of heredity. Altho phenomena of human inheritance were largely utilized in it as material for investigation, its scope was broader than the specific application of the principles it thus derived. It dealt not so much with eugenics as with

¹ *Inquiries into Human Faculty*, p. 24, note. For the word *viriculture*, cf. above, p. 11.

² *Ibid.*, p. 44.

³ *Ibid.*, pp. 305-307.

⁴ *Ibid.*, p. 327, ff.

⁵ *Ibid.*, p. 337.

⁶ Cf. especially, *Sociological Papers*, London, 1904, p. 50, and 1905, pp. 52-53.

the foundations of eugenics. But it has left a lasting mark on subsequent eugenic discussion because of the new lengths to which it carried the mathematical method of analysis in heredity problems — the method which, outlined in *Hereditary Genius* and latterly elaborated by the biometricians, has involved its followers with the followers of Mendel in a spirited and possibly momentous controversy.

A reawakening of interest in eugenics was heralded, on the eve of the present century, by Professor Karl Pearson's vigorous lecture on "National Life from the Standpoint of Science," delivered at Newcastle, November 19, 1900. The message of this lecture was primarily the answer which recent studies of heredity had given to those who concerned themselves with problems of national welfare: the nation is an organism in struggle to survive, and its success in that struggle depends on the strong increase of the best elements of its population. An old truth this may be; but it could still bear repeating at a time when the lecturer was led to say: "I fear our present economic and social conditions are hardly yet ripe" for the movement, urged by Galton, to make "men and women feel the importance of good parentage for the citizens of the future."¹ Moreover, the truth was put bluntly, in an attempt to impress it upon the newly sensitive minds of the British people, aroused at that time, by the course of events, to a questioning of the state of their national power.

The time, indeed, appears to have been unusually favorable to the reception and spread of such teachings. The shock of the reverses in South Africa, by which, throughout England, spirits "were depressed in a manner probably never before experienced by those

¹ *National Life from the Standpoint of Science*, London, 1901, p. 26.

of our countrymen now living" ¹ was "more or less directly" ² the reason for Professor Pearson's choice of his topic. "I have endeavoured to place before you a few of the problems which, it seems to me, arise from a consideration of some of our recent difficulties in war and in trade." ³ England, in manufacture and commerce as in war, had shown "a want of brains in the right place." ⁴ But lack of physique as well as lack of brain was causing apprehension, as evidenced later by the appointment (September 2, 1903) of an Inter-Departmental Committee on Physical Deterioration "to make a preliminary enquiry into the allegations concerning the deterioration of certain classes of the population as shown by the large percentage of rejections for physical causes of recruits for the Army and by other evidence, especially the Report of the Royal Commission on Physical Training (Scotland)" — which had been created the year before. Subsequently the Committee was further instructed "to indicate generally the causes of such physical deterioration as does exist in certain classes, . . . and to point out the means by which it can be most effectually diminished." Probably the public had been prepared for notions of degeneracy in some parts of the population by the epoch-making investigations of Charles Booth in London — investigations which were just then culminating, after a duration of more than a decade. Finally, it was not without significance that the school of biologists who stood for quantitative studies by means of the technique of modern mathematical statistics, and among whom Galton was a recognized leader, signalized their growing solidarity and influence by establishing in October, 1901, their

¹ *Ibid.*, p. 9.

² *Ibid.*, p. 13.

³ *Ibid.*, p. 60.

⁴ *Ibid.*, p. 30.

journal "Biometrika," which, from the time of its initial number, has published many articles bearing more or less directly upon eugenics.

In this same month of October, 1901, Galton delivered the Huxley Lecture of the Anthropological Institute of Great Britain and Ireland, and returned to the field of eugenics by taking as his subject for the lecture "The Possible Improvement of the Human Breed, under the Existing Conditions of Law and Sentiment." He echoed on this occasion the opinions which had marked his earlier utterances, putting them, however, in the mathematical form of his intervening work. He laid, as usual, special stress on the importance of increasing the productivity of the best stock, rather than repressing the worst; and he outlined, conservatively, possible means to that end, in economic aid, honors, and a sort of religious enthusiasm.¹ Of especial interest was his comment on previous apathy.

My subject . . . has not hitherto been approached along the ways that recent knowledge has laid open, and it occupies in consequence a less dignified position in scientific estimation than it might. It is smiled at as most desirable in itself and possibly worthy of academic discussion, but absolutely out of the question as a practical problem. My aim in this lecture is to show cause for a different opinion.²

To the future he looked with hopefulness balanced by his usual good sense:

But the first and pressing point is to thoroughly justify any crusade at all in favor of race improvement. More is wanted in the way of unbiased scientific inquiry . . . to make every stepping-stone safe and secure, and to make it certain that the game is really worth the candle. All I dare hope to effect by this lecture is to prove that in seeking for the improvement of the race we aim at what

¹ *Nature*, vol. lxiv, pp. 663-664, also, *Annual Report of the Smithsonian Institution for 1901*, p. 534.

² *Nature*, vol. lxiv, p. 659, *Rep. Smithsonian. Inst.*, 1901, p. 523.

is apparently possible to accomplish, and that we are justified in following every path in a resolute and hopeful spirit that seems to lead toward that end. The magnitude of the inquiry is enormous, but its object is one of the highest man can accomplish. The faculties of future generations will necessarily be distributed according to laws of heredity, whose statistical effects are no longer vague, for they are measured and expressed in formulae.¹

Such was Galton's reaffirmation of faith in eugenics, after years of work which had borne to it only a "silent reference."² Since this Huxley Lecture, partly because of the receptivity of the public mind, partly no doubt through the collaboration of able scientists in allied studies, eugenics has made progress. "Now," wrote Galton, in his autobiography (1908), "I see my way better, and an appreciative audience is at last to be had, though it be small." To this audience he repeatedly addressed himself: the extent of his activity during his last ten years quite precludes any attempt at this point to give each of his publications separate mention. Three papers only, delivered and discussed before the Sociological Society, are chosen for special comment here.

The first of these papers, read May 16, 1904, bore the title: "Eugenics: Its Definition, Scope, and Aims." "Eugenics," as then defined, "is the science which deals with all influences that improve the inborn qualities of a race; also with those that develop them to the utmost advantage."³ But in what followed, as in most discussions of eugenics, only the improvement of inborn qualities was considered. "The aim of eugenics is to bring as many influences as can be reasonably employed, to cause the useful classes in the community to contribute *more* than their pro-

¹ *Nature*, vol. lxiv, p. 664. Rep. *Smithson. Inst.*, 1901, p. 538.

² *Nature*, vol. lxiv, p. 659. Rep. *Smithson. Inst.*, 1901, p. 523.

³ *Sociological Papers*, 1904, p. 45.

portion to the next generation.¹ To the question thence arising—what influences can be reasonably employed?—came the answer which has taken rank as an authoritative scheme of eugenic activity.²

The course of procedure that lies within the functions of a learned and active Society, such as the Sociological may become, would be somewhat as follows:—

1. Dissemination of a knowledge of the laws of heredity so far as they are surely known, and promotion of their farther study. Few seem to be aware how greatly the knowledge of what may be termed the *actuarial* side of heredity has advanced in recent years. . . .

2. Historical inquiry into the rates with which the various classes of society (classified according to civic usefulness)³ have contributed to the population at various times, in ancient and modern nations. There is strong reason for believing that national rise and decline is closely connected with this influence. It seems to be the tendency of high civilisation to check fertility in the upper classes, through numerous causes, some of which are well known, others are inferred, and others again are wholly obscure. . . .⁴

3. Systematic collection of facts showing the circumstances under which large and thriving families have most frequently originated; in other words, the *conditions* of Eugenics.⁵ . . .

4. Influences affecting Marriage [i. e., the influences of social sanction or disapproval, which might be turned to the service of eugenics] . . .

5. Persistence in setting forth the national importance of Eugenics. There are three stages to be passed through. *Firstly* it must be made familiar as an academic question, until its exact importance has been understood and accepted as a fact; *Secondly*

¹ *Ibid.*, p. 47.

² *Ibid.*, pp. 47–50.

³ Galton was careful, and for the most part more than ordinarily successful, in maintaining the distinction between superior classes in a eugenic sense and the conventional "upper classes" whose position is a matter of wealth or social pretensions. But the distinction is difficult to keep clear. For example, Galton's assumption that ability is satisfactorily measured by attainment, would in many cases identify ability with the possession of wealth or station.

⁴ "The latter class are apparently analogous to those which bar the fertility of most species of wild animals in sôological gardens." *Ibid.*, p. 48.

⁵ A thriving family, tentatively defined, "is one in which the children have gained distinctly superior positions to those who were their class-mates in early life. Families may be considered 'large' that contain not less than three adult male children." *Ibid.*, p. 48.

it must be recognised as a subject whose practical development deserves serious consideration; and *Thirdly* it must be introduced into the national conscience, like a new religion. . . . I see no impossibility in Eugenics becoming a religious dogma among mankind, but its details must first be worked out sedulously in the study. Over-zeal leading to hasty action would do harm. . . . The first and main point is to secure the general intellectual acceptance of Eugenics as a hopeful and most important study. Then let its principles work into the heart of the nation, who will gradually give practical effect to them in ways that we may not wholly foresee.

After nearly a year¹ Galton again addressed the Sociological Society; not, as before, to outline a eugenic system, but rather, in the light of his maturer reflection, to revise the former emphasis and to suggest paths of further work. Under the title of "Studies in National Eugenics," in indicating some of the work to be done, he touched newly on an old project:

In some future time, dependent on circumstances, I look forward to a suitable authority issuing Eugenic certificates to candidates for them. They would imply a more than an [sic] average share of the several qualities of at least goodness of constitution, of physique, and of mental capacity.²

But the idea to which he gave most prominence, and which received most attention during the discussion, was that of "Restrictions in Marriage."³ By all sorts of folk-customs, marriage relations throughout the world are restricted and controlled as social expediency directs. Monogamy, endogamy, exogamy, the Australian marriage-usages, taboo, the prohibited degrees, celibacy — all demonstrate "how powerful are the various combinations of immaterial motives upon marriage selection, how they may all become hallowed by religion, accepted as custom and enforced

¹ February 14, 1905.

² Sociological Papers, 1905, p. 17.

³ Sociological Papers, 1905, pp. 3-13.

by law.”¹ “The proverbial ‘Mrs. Grundy’ has enormous influence in checking the marriages she considers indiscreet.”² As for the religious sanction, Galton was moved by the discussion to append in the published report a specific note on “Eugenics as a Factor in Religion.”³ Thus the imperiousness of social convention and the moral enthusiasm of religious belief, two motives that are always with us, are given emphatic recognition as potential forces of great promise for eugenic reform.

With these parting instructions and renewed expressions of hopefulness, Galton’s active efforts for eugenics may be said to have ended. Almost until his death, which occurred January 17, 1911, he continued to lend the cause the support of his steady interest; and on one or two occasions he consented to speak in public, despite his advanced age of nearly ninety years. But his main work was done. He had been given the rare experience of foreseeing and announcing a new branch of knowledge in advance of his generation, and yet, tho he had made his announcement in middle age, of living to see a subsequent generation overtake his idea and gratefully adopt it. He created eugenics, named it, and formally defined it, as “the study of agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally.”⁴

¹ *Ibid.*, p. 12.

² *Ibid.*, p. 51. This remark, from Galton’s reply to criticism, was apparently written after the original session.

³ *Ibid.*, pp. 52–53.

⁴ *Memories of My Life*, p. 321. A later definition will be found in the form of a note to p. 3 of *Sociological Papers*, 1905: “Eugenics may be defined as the science which deals with those social agencies that influence, mentally or physically, the racial qualities of future generations.” This, however, has been less generally used than the definition given in the text.

By his own achievements, by the kindling influence of his enthusiasm, and by the final gift of his main fortune, he has insured that the science he founded shall go on.

II

When once the possibilities of eugenics became apparent to scientific men, other hands took up the task of investigation which Galton, so many years before, had begun, in the attempt to extend our working knowledge of human heredity.

Eugenics is so deeply founded in heredity, historically and logically, that much of the biological literature of heredity may fairly be said to fall within its scope. Relying on the applicability of general biological principles to the particular case of man, students of social problems have borrowed from biology freely, and often, it must be feared, indiscriminatingly, as in their dabbings in the famous controversy over the transmission of acquired characters. But the analogy of guinea pigs or sea-urchins affords at best an unsatisfactory demonstration of human inheritance, and one that has been slow in prevailing against prejudice and misconception, which resent the idea that human lives are in a sense predetermined, or at least limited, by physical endowment of body and brain, much as the lives of other animals are. Fifty years ago, as Galton relates in his memoirs, "most authors agreed that all bodily and some mental qualities were inherited by brutes, but they refused to believe the same of man."¹ Despite the progress of science since then, one still encounters students of social problems who, finding that eugenic principles

¹ *Memories of My Life*, p. 288.

discredit some favorite scheme of amelioration, or seem to make more hopeless the case of the unfortunate among whom they work, are fain to profess their disbelief in heredity. Here, then, is abundant reason for such special and searching investigations as have come in the last few years.

Of the recent developments in eugenic research, that which most closely links itself with Galton's inquiries is the work of Professor Karl Pearson and his associates. By profession Professor Pearson is a mathematician. Since 1896 he has occupied the chair of Applied Mathematics and Mechanics at University College, London. But an interest in philosophical problems and especially in the theory of evolution turned his attention to the mathematical aspects of various biological phenomena,¹ and, not surprisingly, to the methods of study which Galton's *Natural Inheritance* had proposed. In a series of Mathematical Contributions to the Theory of Evolution he considered and revised the Galtonian Law of Ancestral Heredity, and greatly elaborated the theory of frequency curves and correlation methods, extending their applications to cases where the impossibility of exact quantitative measurement had previously made them inapplicable, and devising safeguards against biased errors in observation. Then, with the new refinements of this "biometric" method at his command, he proceeded to an estimate of the influence of heredity on human traits. Preliminary investigation of the inheritance of certain tangible characters of animals had provided a measure of the degree in which such characters are inherited, expressed in correlation coefficients indicating the resemblance

¹ For early examples of Pearson's work in such subjects, cf. "The Chances of Death and other Studies in Evolution (1897); especially vol. I.

between parent and progeny, or between two individuals of common parentage. In the first of two articles, published in 1903, "On the Laws of Inheritance in Man,"¹ Professor Pearson concluded that the inheritance of physical characters in man is more marked than had been supposed: is in fact as strong as in other animals. More impressive still was the conclusion of the second article, dealing with mental and moral qualities, and showing them to be inherited in the same degree as physical traits. To be sure, the subject of this study offered peculiar difficulties; and the method adopted — a study of fraternal resemblance as evidenced by the reports of school teachers — is open to serious question on grounds of bias in the collection of the data. Yet, after allowance for fallacy and error, the result of the inquiry remained too striking to be longer ignored, and still further shifted the burden of proof toward those who denied the transmissibility of mental endowments.

Eugenic investigation took on added definiteness about a year after the publication of these papers, through the generous interest of Francis Galton, who gave to the University of London funds to maintain a fellowship for the promotion of the study of "national eugenics." The writings of Professor Pearson and his followers had heretofore emanated from the Biometric Laboratory, established by Professor Pearson and the late Professor Weldon of Oxford, at University College, London. The authorities of the University of London now provided rooms and facilities for the newly subsidized research in connection with this Biometric Laboratory, and Professor Pearson, at Galton's request, assumed charge of the work. The eugenics fellowship was awarded first to Mr.

¹ *Biometrika*, vol. ii, pp. 357-462, and vol. iii, pp. 131-190.

Edgar Schuster, and subsequently to Mr. David Heron. Miss Ethel M. Elderton was appointed eugenics scholar. Other persons have participated in the investigations, as computers, collaborators, and advisers. From the laboratory thus organized — The Francis Galton Laboratory for National Eugenics — came an increasing output of interesting and often important studies. Then, last spring, the will of Sir Francis Galton made provision for further expansion. By its terms a residual estate of some £45,000 is left to the University of London “for the establishment and endowment of a professorship — to be known as ‘The Galton Professorship of Eugenics,’ with a laboratory or office and library attached thereto.” The will further makes this statement of what the Galton professor is to do:

1. Collect materials bearing on Eugenics.
2. Discuss such materials and draw conclusions.
3. Form a Central Office to provide information, under appropriate restrictions, to private individuals and to public authorities concerning the laws of inheritance in man, and to urge the conclusions as to social conduct which follow from such laws.
4. Extend the knowledge of Eugenics by all or any of the following means, namely: — (a) professorial instruction; (b) occasional publications; (c) occasional public lectures; (d) experimental or observational work which may throw light on eugenic problems.

In accordance with the founder's wish, Professor Pearson has been chosen as the first Galton Professor. Officials of the University of London have issued an appeal for £15,000 to be expended in the construction of a memorial building in which the work of the Galton laboratory may be properly carried on.

The publications of the Eugenics Laboratory are for the most part comprised in two series: the Eugenics Laboratory Memoirs and the Eugenics Laboratory

Lecture Series. A third series, nominally distinct, — the Studies in National Deterioration, published as Drapers' Company Research Memoirs by the Department of Applied Mathematics of University College — presents the results of similar inquiries conducted in the Biometric Laboratory, often by members of the Eugenics Laboratory Staff. Yet another series, Questions of the Day and of the Fray, also published by the Department of Applied Mathematics, has lately been inaugurated. However, a more intelligible statement of what has been accomplished can be made if the publications be for the moment regarded as falling into three groups, namely: (1) compilations of mere material for the study of human inheritance; (2) intensive and technical studies of special eugenic problems; and (3) general statements of the conclusions reached, in simple form for popular information.

The first group consists of those issues of the Eugenics Memoirs which are known collectively as The Treasury of Human Inheritance. These are designed to make available, in standardized, scientific form, without attempt at interpretation or anything controversial, "published and unpublished family pedigrees, illustrating the inheritance in man of mental and physical characters, of disease and of abnormality." The parts thus far issued contain pedigrees of diabetes insipidus, split-foot, polydactylism, brachydactylism, tuberculosis, deaf-mutism, legal ability, angioneurotic oedema, hermaphroditism, insanity, commercial ability, hare-lip, cleft palate, and congenital cataract. The work of compilation appears to have been well done. The evidence thus gathered affords important data, not only for followers of the Galton-Pearson school, but for all who perceive that the progress of eugenics depends on a further knowledge of the facts.

The second group — detailed reports of special studies — comprises most of the Eugenics Memoirs, and the Studies in National Deterioration. Here, perhaps, should also be placed the Questions of the Day and of the Fray, which up to the present have mainly served to carry on a controversy that recent memoirs on the influence of parental alcoholism provoked. Apart from these polemics, fourteen Memoirs and Studies have appeared, dealing with such subjects, among others, as tuberculosis, insanity, the inheritance of the phthisical and insane diatheses, the relative effect of heredity and environment on eyesight, the effect of home conditions on the physique and intelligence of children, and the inheritance of ability.

The third group is coincident with the Eugenics Laboratory Lecture Series. To persons who wish to learn the gist of the results embodied in the more abstruse memoirs, but who are not so critical-minded or so mathematically trained as to grapple with their technicalities, these lectures carry the message of the Laboratory on the paramount import of heredity in human improvement or degeneration. "All human qualities are inherited in a marked and probably equal degree."¹ Sweepingly this is enunciated, as a foundation principle of eugenics; "good and bad physique, the liability to and the immunity from disease, the moral characters and the mental temperament"² — all, so far as they are not acquired characters, are included in the claim. Environmental factors, on the contrary, exert an influence of altogether subordinate importance:

¹ Pearson, *The Groundwork of Eugenics*, p. 20.

² Pearson, *The Scope and Importance to the State of the Science of National Eugenics*, p. 23.

I will not dogmatically assert that environment matters not at all; phases of it may be discovered which produce more effect than any we have yet been able to deal with. But I think it quite safe to say that the influence of environment is not one-fifth that of heredity, and quite possibly not one-tenth of it.¹

Hence, clearly, attempts at the alleviation or cure of human disabilities should look much more to human nature and much less to the external conditions of the *milieu* than has been usual; and should especially beware of such changes in law or social custom as, by slackening or perverting biological selection, more than undo the direct benefits they have sought to accomplish. Hence, too, that notoriously adverse selection due to the restricted birth-rate fundamentally menaces the racial quality of the future; the more particularly since researches have shown that the neurotic, the insane, the tuberculous, and the criminal are more frequent among the elder-born members of families, and thus constitute an abnormally large proportion of the descendants of persons who have had exceptionally small families.² The advance of the science of medicine and the spread of education could make but poor headway against a steady running-out of the stock which they are called on to restore.

The philanthropist looks to hygiene, to education, to general environment, for the preservation of the race. It is the easy path, but it cannot achieve the desired result. These things are needful tools to the efficient, and passable crutches to the halt; but . . . there is no hope of racial purification in any environment which does not mean selection of the germ.³ . . . Selection of parentage is the sole effective process known to science by which a race can continually progress.⁴

¹ Pearson, *Nature and Nurture*, p. 27.

² Cf. Pearson, *The Problem of Practical Eugenics*, p. 19.

³ *The Scope and Importance . . . of National Eugenics*, p. 39.

⁴ *The Groundwork of Eugenics*, p. 20.

The conclusions announced by the Galton Laboratory have frequently been called in question. Authoritative biological opinion, supported by quite different methods of research, has, to be sure, agreed in assigning much greater weight to heredity than to surrounding conditions. But the findings of Professor Pearson and his collaborators have challenged prevalent opinion so often as to plunge the authors in controversy. In particular, the studies dealing with the effects of parental alcoholism upon children have provoked much hostile comment. Obviously, the assertion that no marked influence on the physique and mentality of the child is produced by alcoholism of the parents discredits much of the best-meant effort now devoted to social betterment, and seems nothing less than high treason to the zealots of the temperance cause. Sentimental protest against such a finding was inevitable. In this instance the temper of the protests had doubtless been exacerbated by irritation at the mathematical treatment which characterizes all the work of the Eugenics Laboratory, and makes the published results nearly or quite unintelligible to persons unfamiliar with the manner of analysis and statement there employed. The criticism which results from prejudice and misunderstanding is, of course, negligible. There remains, however, a valid ground for objection to the assumptions of the actuarial method in itself. To make this more clear it will be necessary to outline a different interpretation of the phenomena of heredity, for purposes of comparison.

According to the Mendelian school, a cardinal principle of heredity is to be recognized in the segregation of alternative characters. The effect of this principle is that the so-called unit characters are, in heredity, indivisible. A given unit character either

appears completely or wholly fails to appear in the bodily make-up of an individual. Thus, for example, either a man is color-blind or he is not, much as a person is either male or female. In so far as inheritance is in this way alternative the intermediate blending of unit characteristics is precluded. The disciple of Mendel therefore conducts his investigations "in such a way that the only possible answer is a direct 'Yes' or a direct 'No.'"¹

The "actuarial" study of heredity, on the other hand, rests on an altogether different assumption. The Galtonian analysis, and the formulæ of Professor Pearson which have developed and emended it, are based on the view that the traits of an individual are not alternative unit characters, but variations of greater or less degree in either direction from an intermediate normal type; and that, if a large number of cases be studied together, the distribution of observed variations about the mean will exemplify the "normal frequency" computed according to the theory of probabilities. Consequently the investigator at the Galton Laboratory does not ask questions to be answered by "yes" or "no." He asks, "to what extent?" and expresses his answer numerically in a coefficient of correlation.

Theoretically, then, if the Mendelian formulation is right, the actuarial method is wrong. Between two alternative unit characters a mean, in the sense of an actual intermediate type, does not exist. In such a case the biometricians' concept of deviations from the normal has no justification in fact. If proof of the incompatibility of the two interpretations were needed, it might be found in the reluctance of Professor Pearson to accept the almost conclusive evidence

¹ W. Bateson, *The Methods and Scope of Genetics*, p. 20.

adduced by experimenters of the other school. In practice, to be sure, the actuarial procedure may yield results broadly corresponding to the conclusions of the Mendelians; especially where the mass of data is large or the characters studied, being in reality complex groups of undistinguished unit characters, yield collective results which partake of the nature of averages. But correlation methods afford at best a blind and clumsy way of dealing with unit characters. If the unit-character theory continues to gain ascendancy, as now seems likely, the authority of the biometricians will decline, and the value of the publications which have thus far issued from the Galton Laboratory will decline with it. Yet even tho the actuarial method be supplanted, it will have served a useful purpose by its example of quantitative work, inadequately conceived but rigorously carried out, at a time when the scientific pretensions of eugenics had still to be established.

Hardly more than a decade has yet elapsed since the rediscovery of Mendel's writings gave a new impulse to the experimental study of heredity. In the course of the search for fresh biological testimony in support of Mendel's views not a little evidence has been derived from inquiries into the transmission of human traits. The general literature of Mendelism has given some attention to unit-character inheritance in man. But thus far the task of systematic eugenic investigation based on Mendelian principles has been largely left to American scientists.

Altho the eugenics movement, under that name, is but a newcomer in America, the course of our earlier thinking and writing on social problems was not without its significant contributions to the subject of race

improvement. The investigations of hereditary criminality carried on by Robert L. Dugdale, in 1874 and 1875, and summarized in his world-famous little book, *The Jukes*, must rank among the most fruitful studies of degeneracy which have yet been made. Later, McCulloch's *Tribe of Ishmael* assembled more evidence of similar purport. Dr. Amos Warner's illuminating chapter on Charity as a Factor in Human Selection, published in his *American Charities* nearly twenty years ago, dates back to a period when, in his own words, there was "almost no literature bearing directly on the subject." Since then the debt of eugenics to scientific philanthropy in the United States has continued to grow. The proceedings of the National Conference of Charities and Correction and of the American Prison Association have contained, from the times of Dugdale and McCulloch and Warner to the present day, interesting evidences of human heredity. Another branch of inquiry has sprung from the suggestion of Dr. Alexander Graham Bell's *Memoir upon the Foundation of a Deaf Variety of the Human Race* (1883), which was followed by Dr. Fay's exhaustive work on *Marriages of the Deaf in America*, and supported by Dr. Bell's endowment of the Volta Bureau, at Washington, for the collection of information concerning deaf-mutes. From biological beginnings, revealed in a chapter or two of *Footnotes to Evolution*, Dr. David Starr Jordan developed the eugenic message of *The Blood of the Nation* and *The Human Harvest*. Latterly, Dr. Woods, in his *Mental and Moral Heredity in Royalty*, has produced a valuable book after the manner of Galton's earlier studies. On the other side, Professor Ward's *Applied Sociology*, weaving its author's social philosophy and the conclusions of Alfred Odin's *Genèse des grands hommes*

into a remarkable protest against the physical determinism of heredity as expressed in Galton's work, glowingly affirms the power of society to develop latent genius by the fostering social environment of education. Such are a few conspicuous examples of pioneer eugenic thought in this country. With them should be mentioned the little-known project of Mr. Loring Moody, of Boston, who, in 1881 or 1882, proposed to establish an Institute of Heredity, and, by means of a school with lectures and a library, to diffuse "knowledge on the subject of improving our race by the laws of physiology."¹ This plan, however, was frustrated by Mr. Moody's death, and the organized dissemination of eugenic instruction which it contemplated long remained unrealized.

A new phase of eugenics in this country began in 1906 with the appointment of the Committee on Eugenics of the American Breeders' Association. The latter society had been formed in 1903, by scientific breeders of animals and plants, to promote the study of heredity in its bearings upon their methods. When, with the purpose of organizing this study, the Association determined to appoint a comprehensive system of committees, it recognized the applications of heredity to human well-being by naming a Committee on Eugenics. Some persons, to be sure, felt at that time that a wholly independent organization would be more appropriate. The American Breeders' Association consequently authorized its eugenics committee to sever itself from the parent society if that course should be deemed best. But the opinion prevailed that the serious study of human heredity would be promoted by close alliance with investigators in

¹ The details of this project have been communicated to the Eugenics Record Office.

related fields; and that in so far as sentimental adherents might be frightened away by distaste for so frank an analogy between the breeding of men and the breeding of cattle, the effect on the ultimate usefulness of the committee would be more salutary than otherwise. Accordingly, for three or four years the Committee on Eugenics continued to exist, with a growing membership and a slowly widening sphere of activity. Then, in July, 1910, it was raised to the rank of Eugenic Section, coördinate with the Plant Section and Animal Section of the original constitution, and permitted to form committees of its own. The committees at present organized are concerned with the heredity, respectively, of the feeble-minded, of insanity, of epilepsy, of criminality, and of deaf-mutism. Each committee has its chairman and its secretary, experts in the special subject. The chairman of the Eugenics Section as a whole is David Sturges Jordan; and the secretary is Dr. Charles B. Davenport, director of the Department of Experimental Evolution of the Carnegie Institution, at Cold Spring Harbor, Long Island, where the work of the section was virtually centered until the Eugenics Record Office was founded in order more definitely to centralize and supplement the activities of the several committees.

The Eugenics Record Office was opened in October, 1910, in a building of its own at Cold Spring Harbor on land adjoining the experiment station of the Carnegie Institution. This proximity permits of close touch between the investigators of human inheritance and the biological experimenters, and makes it possible for Dr. Davenport to direct the work of both. But the Record Office is none the less distinct, as it is maintained by special funds from contributors interested in the cause, and manned by its own sta-

under the immediate charge of its Superintendent, Mr. H. H. Laughlin.

The main work of the Record Office is the collection of family pedigrees revealing the presence of some trait or defect the inheritance of which is to be studied. Inasmuch as these pedigrees are analyzed not in masses and by averages, but individually according to Mendelian principles of descent, it is important that each should, if practicable, comprise the history of a wide family connection through several generations, with all possible detail that might bear on the subject of inquiry. The data for such compilations are secured partly by correspondence, in the form of standardized "Records of Family Traits," and partly through the field workers of the Record Office or of coöperating hospitals, asylums, and other institutions. Once secured, the material is recorded in genealogical charts, with the aid of conventional symbols showing at a glance not only degrees of relationship, but also legitimacy; sex; cause of death; bad habits, diseases, or defects such as alcoholism, habitual wandering, criminality, sexual immorality, tuberculosis, syphilis, epilepsy, feeble-mindedness, insanity, paralysis, neurotic condition, deafness, blindness; or, if the information establishes it, normality. The completed records are kept on file in a fireproof room at Cold Spring Harbor, and made particularly accessible by an elaborate system of catalogue references to families, localities, characteristics, and the like. As evidence accumulates it is published in the form of Eugenic Record Office Bulletins. In addition to these, a series of Memoirs is contemplated.

Thus far the researches of the Record Office have centered about the heredity of mental disease and deficiency. Two of the Bulletins already published

deal respectively with feeble-mindedness and insanity. A forthcoming number is devoted to epilepsy, and material is collecting for other related reports which are to follow. The field workers have delved in the family histories of certain isolated, inbred, and degenerate communities in New York and New England. The "Ishmaelites," whom McCulloch first made known, are being scrutinized again in the light of newer methods. The "Jukes", too, are to be further investigated. Nor is the striking lesson which these inquiries already foreshadow all that is gained. During the summer months the staff of the Record Office directs the training of a class in eugenic field work, conducting its students through isolated districts where the feeble-minded are found living in hovels, and more particularly through establishments for the insane and feeble-minded. There the students, confronted with patients and histories of patients, see with their own eyes a telling demonstration of the cost, in misery and care, caused by the breeding of tainted stocks. More than that, the students and their methods are themselves seen by the persons in charge of hospitals and asylums, who are thus often convinced of the value, for their own purposes and for the public good, of such a tracing back of the ailments which they treat. The directors of the Eugenics Record Office have met with hearty coöperation at such institutions; and it is most gratifying to hear that more than one state has taken steps to support in some measure the scientific economy of an investigation which may lead to a momentous reduction of the burden of caring for the mentally unsound.

III

Substantial advance has thus been made in the knowledge of those biological fundamentals on which the hope of eugenic improvement is built. With the advance has proceeded the persistent setting forth of the social importance of eugenics for which Galton spoke.

No doubt the influence of the Eugenics Laboratory Lecture Series, of the more recent publications of the Eugenics Record Office, and of the independent writings of competent students of heredity and social problems, has been considerable. Unfortunately, however, the very conservatism of scientists, wary of announcing results which have yet to be demonstrated, has probably left the larger number of readers to receive the prophecy of eugenics indirectly, through unauthoritative writings of advocates whom Galton would hardly have wished as allies. A cause less sound at the core might well have been hurt by so much misstatement and sentimentalism, compromised by being used to serve the turn of hobby-riding radicals, or discredited by the adherence of the facile partisans of free-love, always willing to hatch their own project by the warmth of any nearby attempt at reform. In the face of these difficulties, Eugenics seems to have progressed far toward both a wider and a more discriminating reception.

One ally which Galton did approve, and which has been active on behalf of eugenics, is The Eugenics Education Society, founded in London in 1907. In the space of little more than three years this association has attained a membership of over 500, exclusive of the enrolment in branches established at Glasgow,

Liverpool, Haslemere, and Dunedin, New Zealand. Since the spring of 1909 it has successfully maintained a quarterly journal, *The Eugenics Review*. In its beginnings the society was a somewhat heterogeneous body, whose members, save for a common interest in eugenics, came to it with different view points and unequal qualifications for helpful effort. Its task was indubitably difficult. Mindful always of the lack of proven knowledge, and always respecting the injunction that "the pace must not be hurried,"¹ the society was none the less enthusiastically to raise its voice in the wilderness, winning converts for a future cause. At first the outcome was dubious. But the young organization quickly proceeded to find itself; was both wise and fortunate in securing the aid of Sir Francis Galton as honorary president; and, with his advice and through the energy and good sense of its executive officers, seems to have worked out a structure and a plan of action which promise a useful future. Latterly, under the supervision of the Research Advisory Committee, original inquiries have been made into the histories of pauper families and into the biological factor in infant mortality. The society has no official connection with the Galton Laboratory. Tho it follows attentively the results of the Laboratory researches, and is guided by them in choosing and directing its activities, it is equally attentive to the contributions of the Mendelian school. There is possibly danger of inconsistency in a policy shaped by such eclecticism; but so long as the Mendelians and the biometricians themselves show as little inclination as now to compromise, one may trust them to keep their own doctrines pure, and may expect more benefit than harm to follow a well-meant

¹ Galton, *Probability, the Foundation of Eugenics*, in *Essays in Eugenics*, p. 99.

effort to join forces in the ranks of social workers wherever there is common ground.

The Eugenics Education Society is no longer a local influence only. During the past summer it organized a Eugenic Section in the Congress of National Health, at Dublin, the public authorities having this year for the first time thus recognized the place of eugenics in the campaign for health. Further, the Society has arranged to hold in London, in July, 1912, the First International Congress on Eugenics. Already the support and coöperation of well-known scientists have been secured in England, Germany, France, and the United States. The establishment of a section for race hygiene at the Dresden Internationale Hygiene-Ausstellung of the past summer; the meeting there of the Internationale Gesellschaft für Rassenhygiene — a union of constituent societies in Germany, Sweden, and Switzerland; and the still more recent gathering at Paris of the fourth International Genetic Conference may be taken to prove a growing interest in eugenics and related subjects, and to augur well for the success of the eugenic congress next year.

The practical application of eugenic principles lies mostly in the future, when there shall be more certain knowledge of the true principles to apply. But in the meantime, as knowledge grows, opportunity is given at least for partial and temporary remedial measures, to check the apparent degenerative tendencies that contemporary economic and social conditions create. Moreover, if an ultimate policy of race improvement is to be elaborated, there must be a working hypothesis of the task to be accomplished. For both these reasons eugenists must look toward the problem of practical eugenic procedure, and consider in particular, tho

it be only provisionally, the distinction between positive and negative, or, in the happier terms of Mr. Crackanthorpe, constructive and restrictive, eugenics.¹ Is the eugenic ideal more attainable by promoting the increase of superior stock and thus cultivating high ability, or by checking the propagation of the inferior, and so eliminating the congenitally unfit?

Unquestionably Galton conceived and elaborated the program of eugenics in the positive, constructive sense. The opening paragraph of *Hereditary Genius* announces the thesis that "it would be quite practicable to produce a highly-gifted race of men by judicious marriages during several consecutive generations." It was, in fact, genius which had commanded Galton's attention from the time of his first inquiries into *Hereditary Talent and Character*. Latterly his broadening view became more aware of the need for restrictive eugenic agencies, as well;² but still the selective breeding of excellences remained the primary object in view. His idea of a caste based upon superior hereditary capacities; his reiterated allusions to competitive examinations for eugenic merit, and to endowments and marriage portions for the eminently meritorious; these and other recurring signs unmistakably showed the main current of his thought. And so, in his outline of *Eugenics: Its Definition, Scope and Aims*, he declared "The aim of Eugenics is to bring as many influences as can be reasonably employed, to cause the useful classes in the community to contribute *more* than their proportion to the next generation."³ With yet greater definiteness he had already written: "the possibility of improving the race of a nation depends

¹ Cf. Eugenics Education Society, Second Annual Report, pp. 7-8.

² Cf. the last paragraph of the introduction to the 1892 edition of *Hereditary Genius*.

³ Sociological Papers, 1904, p. 47.

on the power of increasing the productivity of the best stock. This is far more important than that of repressing the productivity of the worst."¹ Altogether, one may without great inaccuracy apply to the aggregate of Galton's eugenic writings his own remark in the *Inquiries into Human Faculty*: "I have not spoken of the repression of the [inferior stock], believing that it would ensue indirectly as a matter of course."²

It has been maintained that positive and negative eugenics are one and the same process, viewed from opposite sides: that the relative increase of the better is the relative decrease of the worse. However true this may be as an abstraction, it is not necessarily so significant in its application to actual conditions. We cannot divide all of mankind sharply into sheep and goats and deal with either half in its entirety. Practically, eugenics is likely always to have to concentrate its efforts on the comparatively few who are manifestly good or notoriously bad — working at the fringes of the population and leaving untouched a great residuum of mediocrity. And since these two conspicuous fringes may be of very different extent, very unequally distinguishable from the general stuff of society, and very unlike in their amenability to control, it is by no means clear that the reformer can work, at his pleasure, upon either the top or the bottom with the same result.

For several reasons restrictive eugenics offers at present the greater promise of a beneficial outcome. A number of human defects, easily recognized and apparently nearly or quite unit characters in inheri-

¹ The Possible Improvement of the Human Breed . . . Reprinted in *Essays in Eugenics*, p. 24.

² *Inquiries into Human Faculty*, p. 336.

tance, are by common assent heavy burdens to the individual whom they afflict and the community in which he lives. Insanity, deaf-mutism, serious congenital defects of vision, epilepsy, haemophilia, would be grave disabilities in any state of society which we may reasonably foresee. The feeble-minded, already anachronisms of evolution, must presumably become more and more tragic laggards as intellectual development goes on. On the other hand, the positive virtues of the future are not so obvious and simple. Energy, versatility, a nervous organization sensitive but not fragile, strong parental instinct, altruism — such have been suggested as eugenic ideals; but they, like the still more general desiderata of ability and health, are not so much unit characters as complexes and coördinations of qualities which our present understanding of heredity would find baffling and intractable.¹ Galton himself was not unaware of these perplexities;² tho he made but a lame attempt to evade them by contending that “conflicting ideals . . . alternative characters . . . are wanted to give fulness and interest to life.”³ His conclusion that “the aim of Eugenics is to represent each class or sect by its best specimens; that done, to leave them to work out their common civilisation in their own way,”⁴ scatters the difficulty, but does not meet it. Indeed, it adds to the previous confusion an impossible suggestion of a society compounded of as many sub-races as there are recognizable virtues.

Aside from these obstacles, the realization of constructive or positive eugenics awaits the coming

¹ Cf. the trenchant chapter on *The Problem of the Birth Supply* in H. G. Wells's *Mankind in the Making*.

² Cf. *Eugenics: Its Definition, Scope and Aims*, *Sociological Papers*, 1904, p. 45.

³ *Ibid.*, p. 46.

⁴ *Ibid.*, p. 46.

of the eugenic conscience. Legislation, as we know it, can decree "Thou shalt not" and execute its decrees against unfit parenthood by segregation of defectives; it is nearly powerless to enforce "Thou shalt." Even conscience could more easily master the primeval impulse that actuates human increase than create parental instinct where it did not already exist. Voluntary celibacy induced by a sense of eugenic duty is undeniably an unfortunate and perverse expedient. It almost surely aggravates the infertility of the thinking classes, and further weakens the spirit of nothing venture, nothing have, which national vigor and natural selection require. Nevertheless, where it is practised it does accomplish the extinction of defective stock. Therein it is more effectual than the opposite manifestation of duty is likely to be. For the vital human qualities will not be found to thrive in the atmosphere of a family life which is merely conscientious.

Whatever the cogency of this reasoning, the preponderance of eugenic writers advocate the adoption of restrictive rather than constructive eugenics, believing that thus indirectly a result really more constructive will be achieved. In fact, before the eugenics movement had begun to make headway, many a worker among the criminal, degenerate, or diseased, had observed the nemesis that follows them from one generation to another, and had become persuaded that for the good of society and the rescue of unborn posterity such blighted lines of descent should be cut off. A concrete result of this conviction is to be seen in the restrictive marriage laws of a number of the American states, and several foreign countries, designed to prevent the marriage of persons afflicted with epilepsy, feeble-mindedness, or other specified

defects or diseases. A motley literature, for the most part marked by advocacy of radical remedies, has been another result. An extreme example of such writings is W. D. McKim's *Heredity and Human Progress*, the author of which, satisfied "that heredity is the fundamental cause of human wretchedness," and without faith in the adequacy of systematic segregation to root out the evils he describes, argues for Nature's method of elimination by means of "a *gentle, painless death*," from carbonic acid gas asphyxiation, "restricting the plan, however, to the *very* weak and the *very* vicious," — idiots, imbeciles, most epileptics, insane or incorrigible criminals, and others who for one grave cause or another are now supported or detained by the State.¹ Saner and altogether more impressive is the argument of Dr. Rentoul's earnest book, *Race Culture; or, Race Suicide?* in favor of surgical sterilization of degenerates and defectives. The operation of vasectomy, which Dr. Rentoul first proposed as a eugenic measure some years ago, and to which the name of "Rentoul's operation" is not infrequently applied, has already assumed importance as a practical measure. Sterilization, by this or some other method, has been legalized as a preventive of the procreation of the imbecile, insane, and criminal in Indiana (1907), California (1909), Connecticut (1909), and New Jersey (1911). The results of this striking experiment are thus far regarded as favorable, tho experience has been too brief and too limited to warrant a final judgment.

¹ Op. cit., p. 188.

IV

A quickening of popular interest has called forth, in the last two years, a succession of books designed to acquaint the public with the scope and purposes of eugenics.

Of these books the first, most pretentious, and least successful is Dr. Caleb W. Saleeby's *Parenthood and Race Culture*¹ put forward as "a first attempt to survey and define the whole field of eugenics."² Dr. Saleeby reveals himself as an enthusiast, with a touch of the prophet's fine frenzy, but without the measure of scientific judgment which we have come to demand even of prophets when they venture into such difficult and vital subjects. His central theme — an assumption, supported by an aphorism taken from Ruskin — is the supreme importance of life and the renewal of life, which importance he sees reflected upon eugenics and its thought for the life of posterity. This view-point gives a semblance of unity to the book, and certainly saves it from becoming a mere adaptation of biological commonplaces. But the unity is that of an *idée fixe*, rather than of a systematic presentation. "I claim for eugenics that it is the final and only judge of all proposals and principles, however labelled, new or old, orthodox or heterodox."³ Rendering such blinking allegiance to an emotional half-truth, Dr. Saleeby cannot be judicial. He plays fast and loose with his premises; bases his rules for conduct now on custom, now on utility, now on mysticism, as the course of the argument suggests; and shows himself unpleasantly intolerant of those who,

¹ *Parenthood and Race Culture. An Outline of Eugenics.* London (Cassell & Co.), and New York (Moffat, Yard & Co.), 1909.

² Preface, p. vii.

³ Preface, p. ix.

not having taken the precaution to beg the question at the outset, encounter difficulties in the eugenic program. The total impression is of sentiment rather than of science. And yet one would not deny to Dr. Saleeby the virtues of his defects. After all, eugenics rightfully has its need for emotional appeal, provided ordinary reasonableness is not violated. In protesting against the mere germ-plasm ideal of motherhood and in magnifying the eugenic rôle of woman the book provides a just corrective against the too impersonal drift of much that is more critically written. The chapters on The Racial Poisons, strongly influenced by the author's experience and outlook as a physician, are interesting and in many respects serviceable; despite the fact that at the very point where the discussion becomes most concrete and documentary, in treating of the racial degeneracy due to alcohol, it unluckily runs upon controversial ground and finds itself opposed by the conclusions of the Pearson school. Throughout are excellences of detail. There is a sane conservatism, however it may have been arrived at, in the author's disapproval of chloroform and other violent expedients; in his coolness toward fantastic projects of constructive eugenic selection; in his reliance for the present upon obvious restrictive measures. A certain vivid earnestness is in his style, at its best. Heard as separate lectures, not a few passages would well serve to awaken in the auditor a sympathetic desire to learn more. Dr. Saleeby has many of the qualifications of a successful popularizer. But his attempt at a systematic treatise failed.

Very different in plan and in temper is Mr. and Mrs. Whetham's book, *The Family and the Nation*.¹

¹ *The Family and the Nation. A Study in Natural Inheritance and Social Responsibility.* By William Cecil Dampier Whetham and Catherine Durning Whetham his Wife. London and New York: Longmans, Green & Co., 1909.

Here is no attempt at a systematic formulation of eugenics. Instead, we find first a review of the principles of heredity and variation applicable to man, and then a simple study of the adversely selective birth-rate of present-day England, and its menace to racial quality. The treatment of heredity is spread thin, suggesting a fear of leaving some hopeful theory unmentioned rather than a convinced sense of proportion and emphasis. The Mendelian view of the subject on the whole prevails. Numerous charted pedigrees showing the inheritance of defects and abilities constitute an excellent feature and offer an easy transition to the topic of the rise and decline of families. A browsing research in the peerage and elsewhere yields family records which certainly suggest the recurrence of inherited aptitudes, tho they do not amount to demonstration. With this evidence of the sustained high records of distinguished stocks, and with the assumption "that success in life indicates ability, and that ability is a desirable possession for a race,"¹ the authors proceed to discuss the selective effects of a differential birth-rate. Their analysis of some of the influences which work, through the possibility of voluntary restriction of births, to bring about the virtual extinction of successful families, is more than ordinarily well done, and is sympathetic and wise enough to recognize motives in themselves worthy, however misplaced, among the factors of so lamentable a result. Such are "the feeling of overwhelming responsibility towards possible children"² and the accompanying blindness to the larger responsibility toward all posterity; the excessive pursuit of travel and out-of-door sports; the desire to better the position of woman rather by transplanting her

¹ P. 124.² *Op. cit.*, p. 181.

interests from a home life that has not always been held in just estimation, than by raising her race-motherhood to the high place of honor which eugenics demands for it. To correct these mistaken ideals, and others less defensible, is plainly the central purpose of the book. Elsewhere are proposals to "segregate the worst types of the feeble-minded, the habitual criminal, and the hopeless pauper,"¹ or, entering on the more hazardous ground of positive eugenics, to try, perhaps, tax exemptions in favor of income spent in the education of children, or endowments of young women who seem possessed of exceptional qualifications for parenthood. But these are slight and incidental; the lesson which the authors would convey is the broad lesson that so long as the size of families declines in those lines of descent which have been marked by manifest ability, so long the nation will decline through loss in power of achievement. This is no new idea, to be sure; nor is it very critically stated. The whole book may be described, partly in commendation and partly in censure, as amateur. Mr. Whetham is a scholar and writer of distinction in other fields of science, and both he and his wife are parents who give thought to their honorable calling. But in biology and the social sciences, so far as appears, they speak with no special authority. Judged as an original scientific contribution their book would be nearly negligible. One is moved to judge it otherwise on account of its general good sense, its pleasant, readable style, and its lack of pretension to be more than it is. In addition to these virtues, it has the appeal characteristic of writings by those who are sincerely and earnestly interested in their work, and therefore interesting.

¹ *Ibid.*, p. 212.

From the pen of an American biologist comes the book next to be considered, *The Social Direction of Human Evolution; An Outline of the Science of Eugenics*,¹ by Professor William E. Kellicott, of Goucher College. Aiming at neither originality nor exhaustiveness, Professor Kellicott has expanded the substance of three lectures on eugenics to the compass of a small volume in which he attempts briefly and suggestively to set forth the present status of the science. Through the social generalities of his introductory section on the sources and aims of eugenics he makes his way passably well, but without distinction, to the biological topics with which he is more at home. Even there, his discussion of variation is likely to seem dreary and unmeaning to the layman who has yet to learn its full significance for the question at issue. But once the subject of heredity is reached the treatment becomes decidedly interesting. The Mendelian formulation is made clear with the aid of admirable diagrams. The "actuarial methods" of the biometric school, and the concepts of continuous variation, normal frequency, regression, and correlation, which they involve, are outlined with no little skill. As between these two interpretations the author declares for the Mendelian as "obviously of much the greater importance on account of its more exact, more particular character," and because "its greater definiteness gives it a value in the treatment of eugenics that statistical statements must inherently lack."² Yet he is of opinion that the two schools are not irreconcilably at odds: that rather the biometricians are but dealing in the mass with the same phenomena which the Mendelians study in individual

¹ New York and London: D. Appleton & Co., 1911.

² Op. cit., p. 81.

detail. Hence, until the complex human traits which now baffle Mendelian analysis are differentiated into component unit characters, the actuarial method may be profitably used to reveal a statistical preponderance of hereditary influences the separate operation of which is not yet known. Unfortunately, evidence on human heredity is still largely of the statistical sort. But with reference to many abilities and defects the testimony of pedigree charts is already impressively clear. Numerous diagrams of this kind illustrate the final section of the book, on Human Heredity and the Eugenic Program. It is doubtful if any other statement of the case for eugenics could make such eloquent appeal as these simple diagrams in which the mark of deaf-mutism or feeble-mindedness or some other grave and persistent infirmity blackens the whole page of a family's history, generation after generation. Professor Kellicott does not confine himself to demonstrations of defect. He borrows from the Whethams' book their graphic charted records of able families. His program of social reform, however, is preponderantly restrictive: "In concrete eugenic practice it seems probable that most can be accomplished for the present by striving to limit the multiplication of the undesirable, dependent, or dangerous elements of the social group. There can be less uncertainty here."¹ This note of conservatism is for the most part sustained in the more specific proposals for reforms and in the reassertion of our great need for further knowledge of heredity. The conservatism, it must be admitted, is the conservatism of the biologist: insistence on the necessity of exact biological knowledge, coupled with much of the unthinking assurance that, once such knowledge is attained, only comparatively

¹ *Ibid.*, p. 232.

trivial perplexities remain to obscure the way of the social reformer. Professor Kellicott, entering on so wide a subject, has not wholly escaped the provincialism of a specialist. Notwithstanding, he has produced a book better adapted to serve as a general, readable, introduction to the contemporary literature of eugenics than any other which has thus far appeared.

Most recent of the works here to be considered is Dr. Charles B. Davenport's forthcoming *Race Improvement through Eugenics*.¹ Dr. Davenport's connection with the Eugenics Record Office, as well as the direct, tangible, quality of his earlier booklet on *Eugenics: The Science of Human Improvement by Better Breeding* ² gave promise that his further writings would add a distinctive element to existing eugenic literature. That expectation is now in a measure realized. Because of the unique character of certain parts of the book, a special discussion of its method may be permitted.

By way of preliminary it must be said that the book does not afford a good, comprehensive exposition of eugenics as the study has ordinarily been interpreted. It is abrupt, rather scattering, and by no means always carefully worked out. Moreover, it is partisan, in the sense that its author is so committed to the current Mendelian interpretation of heredity and to the method of pedigree study, as indicating what the principles of heredity are, that the characteristic view-point of the Galtonian school is almost ignored. The partisan quality, however, shown in the extreme to which the author has thus gone in holding to one dominant group of biological assumptions and conclusions (for the two are hard to distinguish), is precisely what gives to his work its chief significance.

¹ The discussion of this book is based on a reading of advance sheets kindly furnished by the publishers, Messrs. Henry Holt & Co., New York.

² New York: Henry Holt & Co., 1910.

The heart of the volume, as well as substantially half its bulk, is in the long chapter on *The Inheritance of Family Traits*. Earlier chapters have emphasized the primary concern of the eugenicist for more intelligent marriage selection, and announced definite adherence to the unit-character theory, which regards persons, with reference to heredity, not as individuals, but as transmitters of a set of specific traits, borne on in latent potentiality as "determiners" in the germ substance, through long ancestry, and revealed, indivisibly, but alternatively, according to some partly discovered law, in the characteristics of posterity. Obviously next in order is a catalogue of unit characters and their manifestations and behavior, so far as known. This catalogue, in surprising comprehensiveness, the chapter now under review affords. Hereditary characteristics are here discussed under no fewer than forty-one heads, with numerous sub-headings. The list comprises, among others, such traits as color of eyes, hair, and skin; stature; weight; special ability in music, drawing and painting, literary composition, calculating, memorizing; general bodily energy; general bodily strength; general mental ability; epilepsy; insanity; pauperism; criminality; various forms of nervous disease; defects of speech, sight, and hearing; cancer; tuberculosis; pneumonia; skeletal deformities; and so on. Supplementing the text and greatly increasing its value, charts and diagrams have been utilized to an extent unprecedented in popular treatises on eugenics. The cogency of this array of evidence is, however, by no means uniform. On the heredity of eye-color, Huntington's chorea, or color-blindness, to take a few examples, the cumulative and mutually confirmatory results of independent researches have established highly definite conclusions.

Concerning deaf-mutism, feeble-mindedness, and certain mental diseases, the fact of heredity is vividly demonstrated, and the manner of inheritance is sufficiently revealed to give ground for adoption of practical measures of reform. But when deductions relative to body-weight are drawn from the records of four to six families, with an aggregate of fifteen, or twenty-three, or twenty-seven children; or when particular mental abilities, only vaguely definable, are investigated on the basis of reports upon family traits by persons whose good intentions do not make them experts and may unconsciously make them biased observers — then the result is of very much less scientific credibility. Dr. Davenport is by no means blind to the uneven value of his material; but his own estimate of its validity is not always clear. A large proportion of the generalizations in this chapter which are introduced by such phrases as “there is no doubt,” or “the conclusion seems justified,” are in fact far from convincing. The critical reader feels that inferences from weak evidence have been ventured with tacit reliance on the analogy of apparently similar instances in cases where the evidence is strong. Doubtless such procedure is permissible if it is not carried too far. So many human qualities have been shown to be hereditary that heredity may not unreasonably be presumed to influence all human qualities. The unit-character concept and the hypothesis of the presence or absence of specific determiners have so satisfactorily explained many phenomena of inheritance that it is but reasonable to believe they will be found applicable to many others. Nevertheless, where the applicability is not yet proven and where the unit characters themselves are not adequately disentangled — as in such an apparently complex

instance as that of "general mental ability" — one may well be chary of recognizing a "Mendelian ratio" "within the error of the method." If Dr. Davenport had classified his evidence differently, and had gathered together his dubious conclusions in a section by themselves instead of scattering them topically among the less debatable results, his compilation would be more satisfactory to exacting readers, and would have set before the lay public a clearer example of the scientific discrimination which eugenics so much needs. As it is, he may expect the opposition of those who are not Mendelians and a somewhat qualified assent from the more conservative of those who are. But to persons willing to base eugenic conduct on more or less conjectural data he has given much reason for very serious thought and no little reason for definite action.

The later chapters, tho they are on the whole of secondary importance, contain several novel and interesting suggestions directly traceable to the Mendelian view-point from which the book is written. Thus the principle of the dominance or recessiveness of characteristics lends new significance to migration and to the opposite condition of settled life in isolated localities; since "negative traits multiply most in long established and stable communities where much inbreeding occurs, while positive traits are increased by emigration, as a fire is spread by the wind that scatters firebrands." The heavy incidence of deaf-mutism or feeble-mindedness in out-of-the-way settlements results from the intermarriage of relatives in whose germ-plasm the particular defect is latent. It is, indeed, with reference to recessive defects that consanguineous marriages in general are dangerous. But altho the latency of defects in a stock apparently

normal is the source of insidious danger when the family records are unknown, this same phenomenon of recessivity offers one means of eliminating defects from the population without resort to sterilization or segregation or other radical measures. For so long as either parent comes of a stock free from a given recessive defect, the presence of that defect in the other parent will be without adverse influence on the children or on any descendants so long as no intermarriages with similarly defective stock take place. In this way rational eugenic marriages might keep indefinitely in abeyance many grave disabilities. Such control, however, becomes possible only when scientific family pedigrees are regularly available. It is unattainable if human traits are reckoned in masses and averages, without regard for the special evidence of each individual's own ancestry.

Outside of England and the United States one meets with comparatively few contributions to the literature of eugenics in the strict sense — the eugenics which takes its name and its view-point from Francis Galton. Undoubtedly the eugenics movement has been influenced by such products of European thought as the Italian studies in congenital genius and criminality, or the demography and public hygiene of more than one continental country, to say nothing of Mendel or Weismann. It is true, too, that in the years of Galton's earlier writings more than one important book of kindred purpose came out of France. Ribot's *L'Hérédité psychologique* (1873), Jacoby's *Etudes sur la sélection dans ses rapports avec l'hérédité chez l'homme* (1881), and Guyau's *Education et hérédité* (1889), deserve mention among the older studies into the heredity of human characteristics. Yet on the whole

the French, with their own special population problem to concern them, have been busied with questions of numbers and have done little to advance the selective improvement of quality. Germany, with its *Rassenbiologie*, has contributed much more. And tho the writings of this school are too extensive and too much a special literature by themselves for any detailed analysis here, their importance as a supplement and corrective to the narrowness of much that is written on eugenics demands for them at least passing notice.

The publication, in 1889, of Georg Hansen's *Die drei Bevölkerungsstufen* gave currency to a stimulating theory of national exhaustion and decline resulting from the constant indraft of population from the country to the towns, where, as was now alleged, the vigor of the country-born raised them for a time into active, dominant efficiency in city life, from which they were doomed to fall, exhausted by a generation or two amid city conditions, toward extinction in the lowest levels of the proletariat. Almost simultaneously with the appearance of Hansen's work, Otto Ammon of Karlsruhe, pursuing anthropological researches in the recruiting statistics of Baden, was led by the evidence of measurements of the cephalic index to conclude that the long-headed Teutonic race responds in a marked degree to the attraction of the towns, where, of course, it is subject to whatever deleterious conditions attach to urban life. In this cityward drift of the Teuton, who has so long been the active and energetic factor in history, it was not difficult to read a prophecy of racial decline, and to find justification for a crude social and political philosophy claiming the support of the principles of natural selection. Such an interpretation, in suggestive but uncritical form, was offered in Ammon's later work,

Die Gesellschaftsordnung und ihre natürlichen Grundlagen, first published in 1895. From France, almost simultaneously, came Lapouge's *Les sélections sociales*; a brilliant but eccentric book, tracing the vicissitudes of races subjected to the selective influences of war, political and economic life, religion, law; and considering the possibilities of systematic selection with the purpose of racial improvement. A journal, the *Politisch-Anthropologische Revue*, established in 1902, testified to the growing interest in the new application of anthropology to social problems. But this interest still lacked the counterpoise of a due scientific discrimination: the writings of laymen who ventured on the difficult ground of race biology commanded attention because of the appeal of their subject, while the works of competent investigators, scattered through various technical journals, failed of a proper effect. With the express purpose of remedying this situation the excellent *Archiv für Rassen- und Gesellschafts-Biologie* was founded in 1904, as a means of bringing together whatever studies by biologists, physicians, anthropologists, sociologists, economists, jurists, historians, or others, might converge on the common, central topic of the life and development of the race. The *Archiv* continues as it began, under the editorship of Dr. Alfred Ploetz, president of the *Deutsche Gesellschaft für Rassenhygiene*.

Another important series of publications which has been supposed in some measure to owe its existence to the influence of Ammon's social theories is the group of prize essays issued with the collective title *Natur und Staat*. Under the distinguished auspices of Professors Haeckel, Conrad, and Fraas, prizes to the extent of 30,000 marks were offered, in 1900, for essays on the enigmatical theme: "Was lernen wir

aus den Principien der Descendenztheorie in Beziehung auf die innerpolitische Entwicklung und Gesetzgebung der Staaten?" The vagueness of the topic was made even more puzzling by specifications subjoined to it, requiring of competitors an exposition of the principles of heredity and historical examples of the adaptive modifications of political and social tradition — a mixture, that is to say, of biological fact with sociological analogy. The announcement of the prize laid the greater stress on the sociological interpretation; the principles which actually determined the award apparently reversed this emphasis. As might have been expected, the contributions were various in scope and too often disjointed in treatment. However, two at least of the essays which the competition called forth — Schallmayer's *Vererbung und Auslese im Lebenslauf der Völker*, which was awarded the first prize, and Woltmann's *Politische Anthropologie*, which failed of an award and was published independently — made substantial contribution to the biology of society. Apart from whatever of originality these books may contain, they are interesting as systematic attempts to interpret the reversed selection which results from the civilized mode of living, and to reconcile proposals of artificial and corrective selection with the imperative laws of the natural process which has been only in part evaded and thrust aside. Not the least service which the prize essays in general have performed was to call forth the scholarly critique by Professor Tönnies, "Zur naturwissenschaftlichen Gesellschaftslehre,"¹ which, with Schallmayer's spirited reply,² illuminates many of the inherent difficulties of a eugenic program, by whatever name it may be called.

¹ Jahrbuch für Gesetzgebung, especially 29 Jahrgang, pp. 27-101.

² Ibid., 30 Jahrgang, pp. 421-469.

V

A review of what has been accomplished in the field of eugenics during the last decade clearly reveals that most of the solid writing and of the really scientific and useful work has come from biologists. The competent student of economic and social questions has rendered comparatively little aid. Perhaps until now his abstention from the discussion has been wise. Experts were not needed to repeat the memorable suggestion that a civilization which should acquire control over the qualities of the human breed might thereby control human welfare also. That suggestion, vital in itself, has been readily enough kept alive by the conviction of the inexpert that anything is the better for tinkering; and in the meantime the biologists, called upon to answer in terms of the laws of heredity whether such modification of mankind is possible, have been coming more and more to the conviction that whoever can determine marriage selection in the present will determine, within large limits, the physique and intellect of the future, and will become in a new sense the maker of history. But in proportion as the biologist foreshadows the physical possibilities of heredity and selection, the want grows for wisdom with which to utilize them. What sort of history, then, is best worth the making? What sort of history does it lie within our power to bring to pass? Is this momentous marriage selection, from motives half rational, half mystical, in their veneration of the continuance of life, to prevail in spite of popular ignorance and passion? Or, leaving this question of practicability for experience to decide, is it after all sensible to burden the present generation with concern for generations of the future whose needs we can

hardly foretell; and, in subservience to the science of the day, to repudiate instinct older than all human experience by "falling in love intelligently"?¹ We have need of a social philosophy to tell us how far eugenic reforms are reasonable and worth while.

Even in its broadly biological aspects eugenics is involved in the long-standing demarcation dispute over the respective jurisdictions of man's artificial control and the unmodified course of natural evolution. Less than twenty years ago one of the greatest of biologists, writing on this very subject, declared in no uncertain terms his disbelief in the practice of artificial selection, as a means of human betterment, by reformers who would eliminate the weak and unfortunate, and "on whose matrimonial undertakings the principles of the stud have the chief influence."² Knowledge has grown, no doubt, since *Evolution and Ethics* was written, and new discoveries have gone far to discredit Huxley's belittlement of the potency of human selective agencies. The details of the biological mechanism by which changes are effected have become far better known. More dubious is the question how much advance has been made toward a wise guidance of such agencies. For Huxley, there was "no hope that mere human beings will ever possess enough intelligence to select the fittest."³ Possibly the social consciousness of a people is an abler guide than he recognized. Perhaps, altho the fittest state of society is beyond our perception, we may achieve by means of eugenic selection a succession of experimental changes which seem to us for the better. But still the order of nature decrees that eugenic experi-

¹ Cf. Davenport, *Eugenics*, ch. 1, §3.

² Huxley, *Evolution and Ethics*, Prolegomena, p. 37.

³ *Ibid.*, p. 34.

ments made in haste are repented at leisure. The eugenist who modifies the race type in the present predetermines for better or worse the mental and physical endowment of distant posterity. In the final analysis, eugenics, like other attempts at lasting reform, must move with the stream of processes which preceded human intervention and limit it still.

Yet in such a stream a steered course may well be better than mere drifting. Traits that have shown themselves the constant sources of weakness and suffering for generations, or through successive culture epochs, seem authoritatively marked by the protest of nature as proper for extirpation. When, on the other hand, physical organs or mental capacities of fundamental importance in modern life show signs of failing under the burden of the civilization which has been built like a superstructure upon them, the continuance of the present manner of civilization demands a strengthening of these, its organic foundations. So much may be hazarded, in generalization, touching the cases in which eugenic initiative is compatible with natural selection. But the eugenist in action must always proceed with the caution of one who reckons with the inscrutable.

If the task of eugenics were to establish a new aristocracy of inborn ability, the prospect of success would be less obscure. The historical institutions of ruling castes and hereditary nobilities have shown that the special capacity which in one generation after another can seize and retain for itself special opportunity has long been competent to raise the family line of its possessors above their less favored fellow-men. Now modern biology, from a new standpoint and with new significance, reasserts the privilege of birth. It is not surprising, therefore, that writers from Galton

down, arguing for the eugenic selection which shall perpetuate and intensify exceptional ability, have virtually proposed an aristocratic social order of a novel kind. But every preferment of the abler members of a community is tantamount to a degradation of the less gifted. To create an exclusive caste founded on eugenic superiority would be to intensify the unhappiness of such persons as are already inferior. The principle of the survival of the fittest normally involves wholesale sacrifice of the unfit; but such unmitigated rigor of selection does not commend itself as a humane method of social amelioration. Nor is the temper of the times favorable to aristocracies of any sort. It calls for a general betterment of the whole mass of mankind.

Can eugenics bring to pass this universal improvement? Probably many a devoted follower of the cause has assumed that if its benefits can be realized by any they might be extended to all. Such was the vision of Greg:

Every damaged or inferior temperament might be eliminated, and every special and superior one be selected and enthroned, till the human race, both in its manhood and its womanhood, became one glorious fellowship of saints, sages and athletes; till we were all Blondins, all Shakespeares, Pericles', Socrates', Columbuses, and Fénétons.¹

But to hold such opinions is to ignore the relativity of success, and to miss the very meaning of eminence. In a world of Blondins a tight-rope walker would command no profit or applause. A world of great teachers would lack for pupils to be taught. The unknown continent which every one had found could hardly immortalize its multitudinous discoverers. Nor could any one master-dramatist make mankind his

¹ *Enigmas of Life*, p. 112.

audience so long as all clamored with equal right for hearing. Unfortunately, too often we overlook, in our projects of reform, the comparative character of individual attainments and individual happiness. We bemoan the rarity of greatness, forgetting how largely the exceptional individuals whom we call great are great because they are exceptional. If, then, we are to elevate a whole community, we must work by a standard free from the element of invidiousness; for no social reform can achieve a general improvement of men's positions relative to the positions of their fellow-men.¹

Apparently then, eugenic selection is concerned not with the conditions of eminence but with the conditions of efficiency. It must work for the internal efficiency which we roughly call sanity and a good constitution, and for the external efficiency which enables an individual, regardless of the comparative efficiency of other individuals, to make steady progress in forcing his non-human surroundings into conformity with his needs. Doubtless the distinctions here implied are indefinite. For instance, the personal advantage of health and strength is diminished if equal physical vigor becomes the common possession of all. Unusual prowess in exploiting external physical resources — that is to say, exceptional economic success — has notoriously been among the most potent causes of inequality. Yet in a civilization which already ministers, by palliatives, to ill health; and in which the distributed burden of caring for the incompetent almost certainly drags more heavily on those who are stronger than would the potential competition which

¹ It is interesting to note that this fact, so often ignored in contemporary discussions of eugenics, was emphasised by Mr. Lawson Tait more than forty years ago, with reference to the passage from Greg cited in the text. Cf. *Dublin Quarterly Journal of Medical Science*, xivii, p. 112.

incompetency now holds in check — in such a civilization, the promise of gain to come from the eradication of feeble-mindedness, or insanity, or the proneness to consumption, would outweigh any new stress of circumstances which it might involve. And with this alleviation of the miseries from within might come augmented economic efficiency, not of the few, but of the many: a general and continuous advance in those characteristics of body and mind which make for man's larger control of heretofore reluctant gifts of nature.

If this sketching of the possibilities is even roughly true it calls again for the verdict of the biologist. Already he has shown reason to believe that factors of health and disease act in heredity with a simplicity and directness which permit of intelligent control. It is now to be seen whether the constructive economic virtues may similarly be resolved in terms of tractable unit characters, and how far they may be reënforced with social solidarity capable of binding over to the service of the common welfare the industrial aggressiveness which might otherwise only aggravate the antagonisms of economic life. The future of eugenics thus depends still on the progress of sober, discriminating research in heredity. The time for applied eugenics, except in the restriction of obvious and serious disabilities, has hardly come.

But it is by no means only the biologist whose judgment is required. Again and again, in the light of biological discoveries a more adequate answer must be sought to that crucial question the significance of which the biologists have mostly failed to comprehend: granting that by rational marriage selection certain re-combinations of human characteristics can be effected at will, what eugenic policy

promises the maximum increase of human welfare? To aid in answering that question the economist is needed. For health and strength and intellect work out the good or ill fortunes of their possessors according to the ways of economic civilization, and not by process of brute struggle for existence. Eugenics is not mere biology. The problems of eugenics are problems of human society.

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THE UNITED STATES LEATHER COMPANY AND ITS REORGANIZATION

SUMMARY

Economic disadvantages of combination in the sole leather industry, 69. — Promotion of the United States Leather Co., 70. — Early and continued failure of the company, 72. — Speculative character of its stocks, 73. — Underlying causes of its failure, 75. — First plan of financial readjustment, 77. — Second plan and the reasons for its lapse, 78. — Revaluation of the assets of the company, and third plan, 82. — Motive back of this third plan, 83. — Fourth and final plan of reorganization, 85. — Justice of this plan, 92. — Subsequent litigation and the settlement, 100.

The reorganization of the old United States Leather Company into the present Central Leather Company affords one of the simplest and most instructive examples of modern reorganization finance. The financial difficulties of the company grew out of the peculiar and highly competitive position of the leather industry during the last twenty years, — a position, moreover, which was remarkably free from the modifying influences of legislation and the tariff. The reorganization itself involved the rights of preferred shareholders to accumulated but unpaid dividends, and the distinction between surplus earned in the regular course of operation and surplus arising out of the increase in value of tangible assets. The reorganization is, therefore, of interest to students both of general economics and of industrial finance.

The sole leather industry does not lend itself readily to large-scale production. Little capital for plant is required, in proportion to the output; the raw materials (hide and bark) are purchased in a highly competitive market, and the finished product is sold

under equally keen conditions of competition. The American tanners buy their raw Argentina hides in competition with Canadian and European tanners, and they sell their leather in competition with the leather of these same tanners. The markets in which they buy and sell are, therefore, world wide in scope. No large amounts of skilled labor of a technical order are required, for the tanning of hides is a long-time process in which the cost of labor is subordinate to the cost of the raw material. Furthermore, the small tanner who is near his bark lands can tan a few hides a week quite as cheaply as the large tanner, further removed, can tan a hundred or a thousand times as many. Under these general economic conditions it would seem that the American tanners would derive little advantage from consolidation. Yet, in spite of these underlying facts, the sole leather industry was one of the first to resort to the modern form of consolidation in the hope of allaying the disastrous results of competition, and at the time this consolidation was formed it was represented by the only corporation in the country with a capitalization well over a hundred million. Viewing the matter broadly, then, we seem to have here a huge capitalistic combination seeking to apply the methods of large-scale production without the prop of a natural or legal monopoly and in the very face of economic conditions which favor small-scale production. The result of this experiment is instructive.

In consequence of the severest kind of competition, the various sole leather tanners found themselves in the early part of 1893 conducting their several businesses at a loss and cherishing no hope of relief.¹

¹ An agreement to stop wetting hides for a certain time was entered into in 1892. This apparently stimulated competition. Report of the Industrial Commission, vol. xiii, p. 685 (L. H. Lapham's affidavit).

The success with which the sugar and oil combinations had lessened competition were matters then familiar to the business world. The tanners would do likewise. Then, too, some of the older men were desirous of organizing their business affairs so that their property could be administered easily in case of their death. These, in brief, were the two chief reasons which led to the formation of the United States Leather Company in the spring of 1893.

The combination formed a consolidation of some sixty leather houses representing approximately a hundred and ten tanneries. It acquired control of about seventy-two per cent of the hemlock output, about forty-five per cent of the union, and about thirty per cent of the oak-tanned leather. The strongest firms in the hemlock branch of the industry went into the combination, but the more prosperous oak and union tanners refused to enter, largely because they were not offered a bonus. Besides the tanning properties the combination acquired about four hundred thousand acres of bark land and the bark rights on nearly a hundred thousand more.

The formalities of incorporation were complied with by five dummy stockholders, and the company was granted a charter by the state of New Jersey on February 25, 1893, under the old "Act Concerning Corporations" approved April 7, 1875.¹ The certificate of incorporation was afterward amended² several times.

The important items of the early financing can be expressed in a nutshell. The authorized capital consisted of sixty-four millions preferred and the same amount of common stock. Of these amounts there

¹ Revised Statutes, 1877, p. 175; General Statutes, p. 907.

² Amended certificate dated April 29, 1893.

were issued, after various adjustments had been made, \$62,282,300 of the preferred and \$62,882,300 of the common.¹ The preferred carried eight per cent cumulative preferential dividends, to be paid from the net earnings of the business. It was preferred both as to dividends and to assets in case of liquidation. Working capital was furnished by an issue of ten million debentures of which six millions were underwritten and issued at par through a syndicate managed by Heidelberg, Ickelheimer and Co.; four per cent of these bonds must be retired each year at not over 110. The preferred stock was issued in return for actual property, either tanneries or bark lands, at a fair inventory valuation. With each share of the preferred stock was given a single share of the common; six hundred thousand dollars par value of the common stock was also given to the syndicate underwriters as a ten per cent commission for underwriting the debenture bonds.² Using these figures as a basis the company had, therefore, actual property to the amount of a little over sixty-eight millions and book liabilities of a hundred and thirty-one millions. The fixed charges, including the cumulative dividends, required \$5,342,584.

The financial position of the United States Leather Company with respect to other capitalistic combinations of the time deserves, perhaps, some passing comment. At the time of its formation in 1893 it had the largest book capitalization of any American industrial. The component companies of the recently dissolved Standard Oil Trust had at that time a little over \$102,000,000, the American Sugar Re-

¹ The capitalization items were somewhat less at the very beginning on account of incomplete inventories of subsidiary holdings.

² Report of the Industrial Commission, vol. xiii, p. 686.

fining Company had an authorized capital of \$75,000,000, the National Lead Company a little less than \$30,000,000, the American Tobacco Company \$35,000,000, and the United States Rubber Company \$50,000,000. All the other industrial combinations then in existence had yet smaller capitalizations.

The figures of the United States Leather Company express the unbounded optimism with which the promoters of the enterprise entered into the work of managing the new combination. The old leather interests, represented by men who had conducted their separate businesses for thirty odd years and more under conditions of free competition, believed that the low price of the finished product was directly attributable to the severity of competition and that when the known economies of combination had been introduced, a period of high prices and trade prosperity would necessarily follow. This was as far as their vision penetrated. One of the most encouraging features of the combination movement is the powerlessness of mere accumulations of capital to undermine fundamental economic conditions. During the first year of its history the United States Leather Company showed a net loss of approximately one and one-third millions.¹ Subsequently its net earnings increased, but in no year of its history warranted the declaration of the full eight per cent on the preferred which the original contract between the corporation and its stockholders required. In 1895 six per cent was paid and rumors were circulated, — “unauthorized assertion by one of the directors, — ”² that the preferred would soon be put on the full eight

¹ *Commercial and Financial Chronicle*, vol. 60, p. 391.

² *Ibid.*, pp. 62, 412.

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per cent basis. The following year, instead of the unauthorized assertion of one of the directors coming to pass, the preferred shareholders received merely one per cent.¹ Needless to say, nothing was paid on the common stock.

The failure of the Leather Company to earn the expected dividends, coupled with its heavy capitalization, gave both the common and preferred stocks a highly speculative character. During 1894 the preferred ranged, with considerable fluctuation, about 60. The following May, because of the somewhat larger earnings, and also the wide circulation of the "unauthorized assertion of one of the directors" that the full eight per cent would soon be paid, the preferred reached almost par. This was the highest

¹ The following table indicates the amount of dividends paid, the earnings, and the accumulated unpaid dividends from the beginning of the company. The dividends were cumulative from May, 1893, which accounts for the fractions.

Year	Earnings	On Pref. Earned %	On Pref. Paid %	Amount paid on Pref. stock.	Accum- ulated Div. on Pref. Unpaid.
May 1, '93 to Apr. 30, '94	-\$1,340,494	-2			
May 1, '93 to Dec. 31, '94	+ 726,473	1.1	..		
1895	9,359,833	15	6	\$3,726,938	
1896	- 2,017,037	-3	1	622,823	\$21.33
1897	3,237,372	5	4½	2,491,292	25.33
1898	1,821,921	3	4	2,950,409	28.33
1899	4,947,601	8	5	3,144,115	31.08
1900	2,281,511	3	6	3,736,938	33.08
1901	5,888,455	9½	6	3,736,938	35.08
1902	4,595,589	7	6	3,736,938	37.08
1903	1,066,095	1½	6	3,736,938	39.08
1904	3,645,267	6	6	3,736,938	41.08
Total to Jan. 1, 1905 (Time of reorganisation)	35,573,080			31,608,267	
1905	6,178,457	10	6	3,736,938	43.08
	41,751,537			35,345,205	

Total surplus from net earnings at time of reorganisation, Jan. 6, 1905, \$3,964,813.

point the stock attained until the time of the reorganization of the company nearly ten years later. In 1896 the company was running at a loss and the preferred declined to about forty dollars per share. During this period the common stock had a mere nominal quotation of five or six dollars. In the years following the stocks of the Leather Company were little more than speculative dice for Wall Street. The failure of the preferred to receive the full eight per cent, any unpaid balance being cumulative, gave the glamor of the unpredictable upon which Wall Street speculation thrives. The common stock had hardly this interest. Speculation is most active in low-priced, non-dividend paying securities, but even these must have some pretence to value, either actual or potential. Leather common had neither. Issued as a bonus to the holders of the preferred, its value was offset, in every balance sheet of the company, by the highly suggestive phrase "good will, etc." Any potential earnings it might ever have had were being rapidly absorbed by the constantly accumulating load of unpaid dividends on the preferred. Its only possible value lay in the voting power, and this was merely nominal, as control was closely held by the original leather interests. The only exception to this dead level of neglect in the eleven odd years during which the common stock was quoted on the New York Exchange occurred in November, 1899. Ordinarily the stock had been quoted within a narrow range between five and ten dollars per share. During October of that year the stock assumed speculative activity till on the 25th it rose to 25 and on the 6th of November to 40 $\frac{7}{8}$. Two days later it fell back to 20, and by November 29th it was again quoted at 10. During this brief period the original old leather interests disposed of

the major part of their common stock,¹ reserving for themselves and their families only the preferred. Various explanations were given for this anomaly, — Standard Oil acquiring control,² “a corner by the insiders,” a proposed re-adjustment of the accumulated dividends. The real reason was, in all probability, that the stock was more closely held than the Wall Street manipulators had realized. This reason, simple enough, is highly significant.

This, in brief, is an outline of the financial history of the sole leather combination down to 1900. It is in sharp contrast to the optimism of its promoters. If one were asked to uncover the fundamental causes which explain this contrast, one could perceive, perhaps, four important reasons which underlie the failure of the Company during the first years of its history. Three of these reasons are economic; the fourth concerns skill of management, an adequate estimate of which can be formed from the history of the corporation.

One of the most potent causes for the early failure of the Leather Company lay in the general business depression prevailing at the time of its formation. The first four or five years of its existence were during a time of marked industrial stagnation. The relatively long period required for the manufacture of

¹ The speculative character of this episode is illustrated by the large volume of sales. There were outstanding 628,823 shares of common stock. During the week from June 3 to 10, 1899, a fair illustration of the normal market, 350 shares were sold. During the week November 4th to 10th, 545,995 shares were sold, — nearly the entire issue of stock. November 7th was a holiday, so this represented 109,199 shares per day average, for a stock which, six months before, had averaged 50 shares a day. In the three weeks from October 21st to November 10th, 1,403,330 shares were sold, over twice the outstanding stock.

² *Com. and Fin. Chron.*, vol. 69, p. 909. Professor J. W. Jenks gives credence to this rumor in his market report on the stock to the Industrial Commission. He does not state his reasons for accepting it and subsequent developments fail to show a single sign of Standard Oil influence.

leather aggravated this difficulty, for the fall in the price of hides lagged behind the fall in the price of leather.

The second economic condition concerns the general character of the industry. Reference has already been made to the peculiar difficulties of large-scale production in the sole leather business. Competition was inevitable and the small well-equipped tanneries were in a strongly entrenched position. This competition was not eliminated through the combination, as its promoters had hoped. The prices of leather were as competitive after its formation as before. From the beginning the Leather Company feared the large, independent oak and union tanners, who controlled more than half the domestic output, and it was the oak and union tanned leather which was largely consumed in the American market. The independent tanners had on their side the advantages of small-scale production and direct personal supervision over the process of manufacture. Even in the hemlock branch of the industry, where the United States Leather Company was dominant in this country, conditions were no less competitive. A very large part of this hemlock leather, made from Argentina hides, was exported to European markets where the American interests met the competition of foreign tanners. In no sense, therefore, was the United States Leather Company in a position to dominate the industry.

The third economic condition which militated against the success of the sole leather combination was the chronic lack of working capital. Between the purchase of green "packer" hides in this country and the actual sale of the finished leather to the domestic consumer, from six months to a year elapses; and

between the purchase of Argentina hides and the settlement with the foreign consumer this period may be extended to a year and a half. Large amounts of working capital are required to carry the material in the process of manufacture. Altho the government gave a drawback on exported leather made from imported hides, even the interest on the duty advanced on these imported hides constituted a considerable item. To carry these heavy charges the company incurred large floating debts which, together with the low market value of their securities, injured its credit.

Since the formation of the leather combination, dividends in arrears on the preferred stock had been accumulating. It was natural, therefore, that various efforts should be made which looked toward the adjustment of these dividend claims. During a period of eleven years, beginning in the early part of 1899 and extending until the settlement of the Colgate suit in the winter of 1910, the Leather Company was struggling to rehabilitate itself from the load occasioned by these claims. Four plans of reorganization were successively proposed and three were widely circulated. All but the last met with utter failure. The fourth plan of reorganization accomplished the desired end only after a long period of court litigation. In it, however, we are presented with one of the least complicated reorganizations in the recent history of corporation finance. It is this simplicity which makes the United States Leather Company reorganization important as a type of industrial readjustments.

The first plan of adjustment of which any rumor reached the financial world was proposed in the early part of 1899.¹ At this time the preferred stock

¹ *Com. and Fin. Chron.*, 69, 138.

itself was quoted about 75 and the accumulated unpaid dividends amounted to about thirty dollars a share. The plan in brief was to give to the preferred shareholders 10 per cent of script in lieu of their claims to dividends.

In this proposition to pay the claims of a favored class of shareholders by script, we have the simplest kind of an adjustment of an interest liability. The only question of doubt would center in the amount of script. The preferred shareholders would demand the full face value of their claims; the common shareholders would naturally refuse this demand on the ground that the preferred shareholders, favored tho they might be, were still stockholders and not bondholders and, therefore, under an implied obligation to bear some of the burden of an enterprise which had proved less successful than expected. Whether or not this difficulty was early encountered, the plan itself failed. It was not even presented to the stockholders. Still, in many respects, it was fairer to all concerned than any of the subsequent plans. It recognized the justice of the preferred stockholders' claim, and in the attempt to satisfy this claim it worked no hardship on the corporation itself, nor did it involve the sacrifice of any nominal tho perhaps unreal rights of the common stockholders. No heavy reorganization expenses were involved. Its great defect lay in its failure to guard against similar difficulties in the future.

In this last particular the second plan of adjustment was a great improvement. On August 22, 1899, a committee was appointed by the Board of Directors "to consider the question of the settlement of back dividends on the preferred stock of the company and

the extinction of the cumulative clause.”¹ The appointment of this committee took place a short time after the first plan was given up so that the two attempts at adjustment were part of the same undertaking. The committee reported to the Board on the 4th of October, proposing that the preferred shareholders (1) surrender all claims to dividends already accumulated, (2) agree to the abolition of the cumulative element of their contract, (3) accept a non-cumulative dividend of 6 per cent, and that in consideration of these concessions the common shareholders should relinquish 50 per cent of their holdings to the owners of the preferred. These provisions were embodied in a circular submitted to all stockholders under date of October 10, 1899. After an outline of the plan the circular goes on to state that the directors recommend its acceptance because of the growing burden of cumulative dividends on the preferred which “tends to injure the good name of the company and is unjustly prejudicial to the stocks as investment.” It is further suggested that it might be desirable that the common stock should have “a prospect of more immediate dividends.” At this time the directors held large amounts of common stock. Furthermore, it was contended that the removal of the cumulative feature on the preferred and the reduction of the dividends to six per cent would prevent any similar trouble in the future.

This plan, like the first one, failed utterly. Out of 622,694 shares of preferred only 180,165 approved; out of the 628,694 shares of the common only 43,429 approved,² — less than a third in one case, and less

¹ *Colgate v. U. S. Leather Co.*, Chancery in N. J., Hoyt affidavit, p. 3.

² *Colgate v. Leather Co.*, Affidavit of Fred E. Knapp.

than a tenth in the other. From a comparison of figures it would seem as if the plan favored the preferred shareholders. It was not the case. The common stock was worth, during October, about eleven dollars a share. The preferred holders were, therefore, giving up over thirty dollars in accumulated dividends claims, relinquishing their charter rights to two per cent dividends and the cumulative feature attached to the remaining six per cent, and in return for all this they would receive common stock which they could sell on the market for five or six dollars.

The lapse of the plan was due probably to the unwillingness on the part of both classes of stockholders to face the fact that the enterprise had been, when gauged by the hopes of the promoters, a failure. In 1899 the wave of extravagant optimism in regard to monopoly combinations was just beginning to make itself felt. Then, too, in the present instance, an adjustment of actual rights was difficult. No fraud could be urged on either side. Yet the preferred shareholders held to the wording of their contract, Shylock-like, demanding their accumulated dividends when there was naught to pay them with; and the common shareholders, never having received a cent in dividends, regarded the whole affair as a snare, and were unwilling to relinquish any of their nominal rights, even tho the actual value of their holdings would be increased. The investor in corporation stock, especially the small investor whose knowledge of the management is indirect, will always gauge the value of his property by nominal rights and legal fictions rather than actual economic values. No reorganization in the entire history of our railway and industrial finance, which involved a readjustment of interests, was ever regarded by all as fair.

The most glaring defect of the plan lay in the fact that the capital liabilities were not reduced. With over one hundred and thirty millions of outstanding capitalization the company showed average net earnings from its formation to January 1, 1899, of approximately \$2,675,000¹ per annum or about two per cent. Had the committee proposed to cancel altogether half of the common stock instead of giving it outright to the preferred holders, the plan would have conformed better to underlying economic conditions. It would have been simpler, too, as it would have involved a sacrifice on both sides instead of an attempt to balance one set of rights by another.

For some time after the failure of this plan nothing was done toward the readjustment of the financial affairs of the company. A dividend of six per cent was earned and regularly paid on the preferred. The accumulated unpaid dividends increased, therefore, at the rate of two per cent annually.

During the latter part of 1902 the management, at the instigation of the officers of the subsidiary tanning companies, became interested in the reappraisal of certain large areas of hemlock bark lands. These timber forests were bought from the old leather interests in 1893 at what was then a fair market valuation.² In the meantime, the value of both timber and bark had increased considerably. It was natural, therefore, to suppose that the lands were worth more than when acquired.³ A revaluation was accordingly

¹ Including interest on debentures, an average of \$2,676,804.

² Four dollars a cord for lands owned in fee, two dollars and fifty cents a cord for lands with bark rights only. Application to N. Y. Stock Exchange for listing the 6 per cent debentures, June 21, 1893.

³ The covert reason for this reappraisal was the desire on the part of the managers, who then controlled the preferred stock only, to adjust the accumulated dividend claims on the basis of a hidden but unearned surplus. Preferred Stockholders' Circular, May 28, 1903, also (*Colgate v. Leather Co.* Hoyt affidavit, p. 14.)

made by certain executive officers and was reported to the directors on May 28, 1903. The committee found that the bark property was worth about fourteen millions more ¹ than the figures at which it was carried on the corporation's books. This revaluation plays a considerable part in the subsequent financial history of the Company.

About the same time the United States Leather Company caused to be incorporated the Central Pennsylvania Lumber Company, a very large majority of the stock of which — apparently all except directors' qualifying shares — passed directly into the treasury of the Leather Company. This Lumber Company took over the timber but not the bark rights on the revalued bark land described in the previous paragraph. In payment for the timber the Lumber Company then issued to the subsidiary tanning companies ten million first-mortgage bonds. These bonds were then transferred to the treasury of the United States Leather Company — the holding company — in liquidation of dividend claims or claims for money advanced.

On the same date that the report upon the revaluation of the bark lands and the formation of the Lumber Company was received by the directors, this board issued a circular to the stockholders which embodied a new plan of reorganization. Briefly the plan was to use some of the new revaluation surplus to liquidate the claims of the preferred stockholders to accumulated dividends, then amounting approximately to thirty-seven dollars per share. In detail the plan required the deposit of the preferred stock with the Morton Trust Company against negotiable certificates. The trust thus created was to be administered by a self-

¹ \$14,235,198.10. *Ibid.* Additional affidavit of James R. Plum, p. 7.

constituted committee, drawn directly from the large holders of preferred stock who were then important on the directorate. It was to expire by limitation in ten years unless reconstituted by eighty per cent of the holders of the certificates.¹ It could also be terminated on sixty days notice by a majority of the certificate holders.²

The objects of the trust, as explicitly defined in the trust agreement, were³ to ratify the issue of the ten million lumber bonds, and⁴ to devise a plan whereby some of the surplus resulting from the revaluation could be divided among the preferred stockholders, in consideration of their claim to dividends in arrears. The intent of the plan to use this surplus to meet the claims of the preferred shareholders was explicitly stated in Article III of the trust agreement, so that as late as 1903 the directors were of the opinion that the increase of assets due to the higher market price of timber could be regarded as net surplus legally applicable to the satisfaction of the claims of the preferred shareholders. The point is important because in the litigation which followed the successful reorganization of the Company the view was denied by these same men who had earlier made the proposal.

The plan failed, like the two preceding attempts at readjustment. For its adoption it required a deposit of at least eighty per cent of the outstanding preferred stock, — upwards of five hundred thousand

¹ Preferred Stockholders' Agreement of 1903, Article xii, par. 3.

² *Ibid.*, par. 1.

³ Preferred Stockholders' Agreement of 1903, Preamble.

⁴ The original certificate of incorporation required the ratification of all issues of bonds or debentures by eighty per cent of the outstanding preferred stock. Altho the Lumber bonds were not a direct obligation of the U. S. Leather Co., the management deemed it wise to obtain the assent of eighty per cent of the preferred stock to their issue.

shares. On December 23 the committee announced the lapse of the plan, only 243,728 shares having consented to the agreement.

The managers, being large holders of preferred stock, were actively in favor of this agreement. They believed confidently that the reorganization would go through and in view of this the president and four members of the directorate acquired, on syndicate account, fifty thousand shares of the common stock. This obviously would be enhanced in value through an adjustment of the accumulated dividends on the preferred. This stock was acquired during January, February, March, 1903¹, before the publication of the revaluation. Altho the agreement itself failed of adoption, the expected success of the fourth and last plan, proposed soon after, enabled the syndicate to dispose of their holdings at a profit during October and November, 1904.

The reason for the failure of the plan of 1903 lay in the conditions under which it was proposed. In the broad purpose of rehabilitating the credit of the company no possible fault could be found. The plan, unlike the preceding one involved no balancing of rights between preferred and common shareholders. It demanded no pecuniary sacrifices, no reorganization proceedings in the broad sense of the term. Yet the trust created by the preferred holders was to be administered under most peculiar conditions. Title to the stock was to pass to the Trust Company under an agreement the actual workings of which were controlled absolutely by a small committee in the management of the Leather Company. Beneath the outward form of the agreement there was involved the actual surrender of the rights of the preferred

¹ *Colgate v. Leather Co.*, Defendant's affidavit, pp. 16, 114, 126, 132, 120.

shareholders with no certain assurance that these rights would be protected by the trustee. Nor did the agreement stipulate that the Morton Trust Company should obtain a settlement of the dividends in arrears. It was merely required to pay over to the registered holders of the beneficiary certificates six per cent per annum, and so much more, after deducting expenses, as the Leather Company saw fit to pay over to the trustee. The agreement, owing to the phraseology of the original certificate of incorporation, required at the outset the assent of over eighty per cent of the preferred stock; it could be maintained for ten years by the approval of fifty per cent. The management, who were to operate the trust through their own committee could easily control this amount. The plan, therefore, was a covert attempt on the part of a managing few to acquire absolute control of the preferred stock through the medium of a voting trust directly subservient to their own desires. This real purpose was disguised under the pretence of a settlement of the accumulated dividends.

After the failure of this third plan of adjustment in December, 1903, nothing was done further until April, 1904, when vice-president Healy of the United States Leather Company wrote to Nathan Allen, a large preferred shareholder, suggesting that perhaps Armour & Company, producers of green hides, would coöperate in the management of the company.¹ Allen had had already considerable dealings with Armour & Company. Some months later a meeting was arranged between P. A. Valentine, of Armour & Company, and vice-president Healy. This meeting took place in Chicago in the late summer and with it began

¹ *Colgate v. Leather Co.*, Hoyt affidavit, p. 31.

the negotiations which ended finally in a successful reorganization.

From the very beginning the leather combination had been weak in its control over the market in which it bought its hides. It seemed clear that if only the Chicago packers could be induced to coöperate in the management of the Leather Company, a great and permanent trade advantage would be insured. The Armours had their price. At first they asked nine millions¹ of stock in the reorganized company, but "after serious and protracted discussion the amount of six million two hundred thousand dollars was finally fixed."² This ample allotment to the Chicago packers was not considered a gift. On the contrary it was widely heralded that the Armours would sell their hides to the United States Leather Company on more favorable terms than they extended to other tanners. The good will and the coöperation of the packers were supposed to have a pecuniary value. Yet the real advantage to the Leather Company arising from the coveted coöperation is problematical. The agreement between the Armours and the committee of the Leather Company required that the former parties pay for the expenses of the reorganization. The largest single expense of this, so far as can be learned, was a fee of fifteen thousand dollars to each of the five members of the committee of the directorate of the Leather Company with whom the plan was

¹ *Colgate v. Leather Co.*, Defendant's affidavit p. 115.

² It is believed by the writer from information derived from reliable but indirect sources that the amount first proposed by Valentine was ten million instead of nine as stated in the affidavit, and that the final agreement on \$6,200,000 — 10 per cent of the outstanding common stock — was due to one of the Armour representatives who had charge of the sale of their hides. It was the plan of the Armour representatives before entering the conference, to begin their negotiations on the basis of a high figure and gradually work down in accordance with the attitude of the Leather directors. Afterwards they expressed surprise that the leather interests acceded to so high a figure.

negotiated. Yet, and here is the weakest point in the whole agreement, the Armours did not agree to sell hides to the United States Leather Company on better terms than those extended to its competitors, nor did the Armours agree to retain their stock.¹ There was absolutely nothing in the agreement to prevent the Armours, once in command of the situation, from administering the Leather Company in the interest of their packing business. Should they fail in this, they could sell their stock on the open market and withdraw their coveted coöperation.

An interesting circumstance showing the nature of this coöperation was brought to light at a later date. Before the plan of reorganization was published, while negotiations were in progress with vice-president Healy and others, the Armour interests bought one hundred and fifty thousand shares of the common stock of the United States Leather Company, ostensibly to vote for the resulting plan and thereby insure its acceptance. The common stock was then selling in the neighborhood of nine or ten dollars a share. In the course of these negotiations the Armour interests stood out clearly in every particular for the interests of the common as against those of the preferred stock,² and the reorganization presently to be consummated was of manifest benefit to the common stock, since it would remove the burden of accumulated dividends on the preferred. When the plan was made public the price of the common stock rose to fifteen and later twenty-one dollars per share.

The final agreement between the various interests was framed in New York in the early part of December, 1904, and the resulting plan of reorganization

¹ *Colgate v. Leather Co.*, Hoyt affidavit, pp. 32, 35.

² *Ibid.*, pp. 29, 31.

bore the date of December 17th.¹ The circular announcing the details to the public contains some statements which were evidently false. Among other things it states that the Armours first approached the members of the Executive Committee, whereas all the affidavits filed in the subsequent Johnson and Colgate suits, that allude to these negotiations at all, state plainly that the Armours were approached by influential officials of the Leather Company. Secondly, it gives the stockholders to understand that the Armours had acquired "a substantial holding of the shares of the Company" at a time prior to the negotiations that led up to the reorganization. This was not true, so far as can be learned. The Armours state directly to the court that they did not own any shares in the Company prior to these negotiations,² and as far as can be learned, the only stock they owned at the time the circular was sent out was either a part or the whole of the one hundred and fifty thousand shares of the common which they had purchased a month or two earlier with the intention of obtaining a speculative profit through the rise in its market value. Both of these points are important because they gave the false impression to the stockholders that the Armours had, at least partially, earned their "bonus" by a

¹ The definite understanding between the parties was concluded early in November but was not made public until later, thus enabling the Armours and the inside interests who then held 50,000 shares on syndicate account to manipulate the common stock to their better advantage. This is proved conclusively from the Valentine affidavit. On page 143, line 10, Valentine states "neither Mr. Armour nor I was the owner of or in anywise interested in a single share of the stock of said Company, either Common or Preferred, nor did either of us become such owner or so interested until after the general or structural features of the plan of December 17, 1904, had been practically agreed on with Messrs. Hoyt, Healy," etc. Later in the same affidavit (page 145, line 8) this same Valentine states that he and Mr. Armour "purchased, in the open market, during November and December, 1904, . . . 150,000 shares of Common Stock. . . ." *Colgate v. Leather Co.*, Valentine affidavit. Also Hoyt Affidavit, p. 42.

² *Colgate v. Leather Co.* Valentine affidavit, p. 143.

a permanent and *bona fide* interest in the affairs of the Company.

The circular states that better facilities for credit must be insured, that the working balance originally obtained from the six million debentures was insufficient, and finally that "the establishment of closer relations with interests with which this Company necessarily has large dealings and the vesting in them of substantial accounts of the securities of the Company, and especially of its common stock, will be a material benefit to the Company and to both classes of its stockholders."¹ To accomplish these purposes the committee of the directors propose to form a new company that shall subsequently acquire the physical assets of the United States Leather Company.² The securities of the United States Company are to be exchanged for those of the new company on the following basis: For each share of the old preferred stock is to be given 50 per cent of first mortgages five per cent bonds, 50 per cent of new seven per cent cumulative preferred stock and a bonus of $23\frac{1}{2}$ per cent of new common stock. Each share of old common stock is to receive only 30 per cent of new common stock, — each ten shares of old being equivalent to three new shares. The reorganized company itself is to have eighty millions of stock, divided equally into seven per cent cumulative preferred and common stock. It is proposed also to authorize an issue of forty-five million of first-mortgage bonds. The issue of United States Leather debentures would be allowed to remain undisturbed.

The distribution of the capital items of the two

¹ Circular to Stockholders of The United States Leather Company of December 17, 1904, par. 4.

² *Ibid.* Outline of Plan, Sec. 2.

companies can be seen at a glance from the following table:—

	Bonds	Preferred Stock	Common Stock
To holders of the Preferred stock of The United States Leather Company (\$62,282,-300 outstanding) for each share with all its accumulated dividends:			
New Company bonds, \$50	\$31,141,180		
" " Preferred stock, \$50		\$31,141,150	
" " Common stock, \$23½			\$14,636,340.50
To holders of the Common stock of the United States Leather Company (\$62,882,-300 outstanding) for each ten shares, three shares of the Common stock of the new Company			18,864,690.00
To the Armours for their coöperation and for all services and expenses, whether legal, of committees, bankers or otherwise in consummating this proposed plan			6,200,000.00
Reserved (a) to provide for the retirement and redemption of the outstanding debentures of the United States Leather Company; (b) to acquire additional properties; (c) to provide additional working capital; and (d) for the general purposes of the new Company	13,858,850	8,858,850	298,900.50
Total	\$45,000,000	\$40,000,000	\$40,000,000.00

It will be observed that the fixed charges are reduced by an amount equivalent to two per cent on the old preferred stock. Leaving aside the interest¹ on the outstanding debentures the reorganized company called for the payment of about \$1,500,000 on the new bonds and \$2,200,000 on the new seven per cent preferred stock. The fixed charges were therefore a little over \$3,700,000 dollars,² an amount exactly equal to six per cent on the old preferred stock. The original contract demanded eight. The average net earnings of the old Leather Company, from its inception to the end of December, 1904, had been a little over three million dollars. The proposal of the reorganization was therefore far from conservative but

¹ About \$360,000, varying slightly each year.

² \$3,736,938.

a marked improvement over the unwarranted optimism of the early promoters of the combination.

As a whole it can be said that the plan sought to accomplish the following ends,—a new company with a more liberal charter, the coöperation of the Armours, the extinction of the claims to unpaid dividends, the reduction of fixed charges, and better facilities for obtaining working capital.

One of the most important items in any plan of reorganization centers about the changes in the capitalization items. Is the total capitalization increased or decreased while the actual assets remain unchanged? Counting the underlying debentures as the same in both cases, amounting in round numbers to five millions, the capital liability of the old company stood at a hundred and thirty millions, that of the new company, including the bonus of common stock to the Armours but excluding the amounts reserved for "additional properties" and "general purposes," at a hundred and seven millions. This, it will be observed, represents a slight reduction in capitalization, and if the six millions given to the Armours is still further subtracted the reduction is more marked. Considering, however, that the interest-bearing securities remain essentially unchanged, and that the common stock, which is alone reduced in amount, was given originally as a bonus, the "draining of water" is not thoro.

Before attempting to estimate the inherent justice of this plan of reorganization one is confronted at the outset of the discussion with the status of the timber-land surplus of the United States Leather Company. This surplus, it will be remembered, arose from an increased valuation placed upon the Company's large hemlock forests. The timber of these forests, but not the bark, had been sold to a

subsidiary company and the increased value of the lands was represented partially by bonds of this concern in the treasury of the United States Leather Company. It was argued by the directors and those who believed that the terms offered the preferred shareholders were just that this revaluation surplus could not rightly be used for the adjustment of their accumulated dividends. The original contract between the corporation and its preferred shareholders stated that dividends should be paid only out of net earnings. Increase in the value of real property could not be construed as net earnings. Moreover, the revaluation was based on the assumption that the Leather Company was a "going concern," a contention which seemed to imply that the new value placed upon the lands was excessive if the property was to be sold in the open market. In opposition to these views those who considered the plan unfair to the holders of the preferred stock pointed out that timber representing the increase in value of the bark lands had been sold and the Leather Company had received merchantable securities in payment. These securities were, therefore, net earnings and could be rightfully used to liquidate the claims to unpaid dividends. To reinforce their position they reverted to the circular sent to the stockholders in May, 1903, in which the same directors declared explicitly¹ that the surplus belonged to the preferred stockholders for the settlement of their dividend claims. The question is certainly an interesting one from the point of view of accountancy. Its solution would seem to depend, in the opinion of the present writer, upon the intent behind the sale of the timber to the subsidiary company. If this transfer

¹ "Whereas such surplus of the Leather Company might properly be distributed among the holders of its preferred stock. . . ." Preferred Stockholders' Agreement of 1908, par. 10.

actually represented a *bona fide* sale of property without involving a corresponding diminution of capital assets, then the profits were certainly a part of the net profits of the business and could be used legitimately to reduce the outstanding liabilities to the preferred shareholders. If, on the contrary, the formation of a subsidiary corporation involved only a legal fiction and the sale of lumber to it indicated no *bona fide* sale, then the profits arising were certainly not net profits and could not be used to liquidate the claims of the preferred shareholders. The question, unfortunately, was not passed upon by the court,¹ when the whole reorganization came under its review.

Setting aside this question of accountancy it would seem that the justice of the plan was defensible upon either of two lines of evidence, — the actual value of the property at issue or the market value of the various securities concerned in the reorganization. That is, the fairness of the reorganization can be tested by two different lines of evidence, — the equity or inventory value of the assets behind the preferred stock and the market value of the securities before and after the consummation of the reorganization.

First, we will examine into the inventory value or equity behind the preferred stock. At the time the tanneries and bark lands were acquired in 1893 there seems little doubt but that they were paid for in preferred stock on the basis of a fair valuation. The six millions of debentures were issued for cash, the bankers getting their commission in common stock.

¹ Two of the leading cases regarding the legal status of a surplus in excess of a stock liability are *Williams v. Western Union Telegraph Co.* (93 N. Y. 162) and *Roberts v. Roberts-Wicks Co.* (184 N. Y. 257). In the former *Earl, J.*, states that when the property of a corporation exceeds its capital stock "such surplus, in a strict legal sense, is not a portion of its capital and is always regarded as surplus profits" (p. 188). And in the second case, *Gray, J.*, said "When the property of a corporation has accumulated in excess of its chartered capital, the excess may be regarded and dealt with as constituting a surplus of profits" (p. 266).

This cash was invested directly in the business. We may therefore say that the properties of the Leather Company were, on a fair market valuation, originally worth the face value of the preferred stock and the debentures, \$68,283,300. On January 1, 1905, a fair date for comparison, the United States Leather Company had acquired a surplus on net earnings of \$3,964,813, and a surplus from the revaluation of the bark lands of \$14,235,198, making a total surplus of \$18,200,011. The small surplus from net earnings had been, very largely, invested in the properties, so that on January 1, 1905, a fair valuation of the physical properties of the Leather Company would be about \$86,483,311, and from this subtracting the debentures, — on January 1, 1905, \$5,280,000, — it appears that the sixty-two odd millions of preferred stock was represented by actual physical property to the value of about \$81,203,311. The surplus to the preferred shareholders was therefore about \$18,920,011. This represented \$30.38 a share. The accumulated unpaid dividends amounted then to 41 per cent so that it is quite right to say that the claim for unpaid dividends was worth about seventy-five cents on the dollar. For this \$30.38 per share of actual property the preferred shareholders were asked to accept 23½ per cent of new common stock. On the basis of the market quotation of fifteen dollars per share for the old common stock this allowance was worth \$11.75. In other words, for a legal claim to \$41 per share and an actual inventory surplus of \$30.38 per share the preferred holders were asked to accept securities the market value of which was about twelve dollars. From such a statement of the case it would seem that the reorganization was unfair to the owners of the preferred stock.

And if we now turn to the equity value of this allowance of common stock the story is not very different. The new common stock would have an equity value, if the reasoning suggested in the preceding paragraph is approximately true, of about \$18,920,011 of actual property. Dividing the equity value by the par value proposed to be issued, we reach the conclusion that each share of the new common stock had a property value back of it of about \$48. The preferred stockholders were to receive 23½ per cent of their holdings in this common stock in consideration of their claim to unpaid dividends. In property value this 23½ per cent of common stock had an equity back of it of only about \$11.28. From these figures it would again seem that the plan of reorganization was unfair to the preferred shareholders.¹

¹ These estimates can be summarized in the following table. They assume that an adequate depreciation charge was made each year.

<i>Equity value of Preferred Claim</i>		
Surplus from net earnings May 1, 1893, to Jan. 1, 1905	\$3,964,813	
Surplus — Revaluation of Bark	14,235,198	
Total surplus, Jan. 1, 1905	18,200,011	
Preferred Stock	62,283,300	
Debentures	6,000,000	
Original Property Investment	68,283,300	
Total Physical Property, Jan. 1, 1905	86,483,311	
Debentures Outstanding	5,280,000	
Equity to Preferred Stock	81,203,311	
Surplus to Preferred Stock	18,920,011	
Surplus per share of Preferred Stock		30.38
Accumulated Unpaid Dividends		41.08
Percentage of Actual Property to Preferred Claim		74%
Market value of the 23% new stock offered (on basis of \$15 for old stock)		11.75
<i>Equity value of Common Stock offered</i>		
Equity to New Common Stock as above	18,920,011	
Common Stock outstanding against this	39,701,030	
Equity value per share	\$48.	
Equity value of 23½% offered	\$11.28	

But there were other considerations than the mere adjustment of inventory values. If we turn to the market prices of the preferred shares as affected by the reorganization, the story presents another side. The rehabilitation of the Company's finances was undoubtedly of general advantage to the credit of the corporation. This fact is clearly shown by the improvement in the market quotations of its preferred shares. During the first six months of the year 1904, before the publication of any plan of reorganization on the lines sketched above, the preferred stock averaged \$78 a share. During the time the plan was being worked out, the stock rose steadily in value and soon after the plan was made public it touched \$106. During the first half of 1905 the stock averaged \$108 and during the last half \$115. It is very clear, therefore, in spite of the estimates outlined in the preceding paragraph, based as they were upon inventory value rather than on market quotations, that the reorganization was of manifest pecuniary benefit to the preferred shareholders. Irrespective of any inventory value, it was thoroly fair since the market value of the preferred shares increased by an amount equal to the unpaid claims to dividends.

These two lines of reasoning bring into clear contrast two different points of view about which all estimates of fairness somehow center. According to a computation based on inventory values the preferred shareholders were unfairly treated; if the estimate is based on the enhancement of the value of their securities in the open market, from 78 to 118 within a comparatively short period and due entirely to the supposed advantages of the reorganization, one must presume that they were treated with the utmost liberality. It is a question of the same order as is

frequently presented in financial readjustments. It indicates the importance of intangible factors in determining the value of corporate securities.

The plan of reorganization just sketched did not meet with immediate and unqualified approval. Aside from the grumblings of both preferred and common stockholders,¹—grumblings that always appear no matter how fair any plan may be,—the two matters which called for the most universal condemnation were those conditions of the reorganization already dwelt upon. They were the gift of over six million dollars of common stock to the Armours and the slight consideration given to the accumulated dividend claim of the preferred shareholders. However, by February 15, 1905, 413,143¹ shares of the preferred, and 429,997² of the common had been deposited with the Central Trust Company of New York, and on the following day the Committee announced that the plan was operative. Two days later the interim certificates were listed on the New York Stock Exchange.

On April 12, 1905, the Central Leather Company was incorporated under the 1893 Corporation Act of New Jersey.¹ Soon thereafter, about May 23d, the interim certificates of the Central Trust Company were exchanged for the bonds and stocks of the Central Leather Company in accordance with a plan of exchange outlined in an earlier paragraph. The reorganization of the old company was actually accomplished. The number of sales of the United States Leather Company stock diminished to insignificance and those of the Central Leather Company assumed some appearance

¹ For example, published letters of dissatisfied shareholders. See letter to Boston Herald dated December 17, 1904; New York Evening Herald, dated December 19, 1904.

² *Colgate v. Leather Co.*, Valentine affidavit, p. 146.

of speculative activity. A large amount of the floating supply of the old stock was acquired in the interests of the reorganization and by the close of 1906, 575,180¹ shares of the preferred or 92 per cent of the total issue, and 614,828² shares of the common or 97 per cent of the total issue were in the control of the new Company.

In the years immediately following the reorganization, the two companies were in a legal sense separate concerns. This separation, however, was little more than a legal fiction. The directors of the old United States Leather Company were directors in the new Central Leather Company. The two companies had identical offices and the same places of business. Altho at first merely a holding company, the Central Leather Company began immediately to acquire and operate competing tanneries. They obtained the tanneries of L. Beebe and Sons, N. R. Allen's Sons Co., Cover and Drayton, V. A. Wallin and Co., and certain smaller interests. For these additional properties payment was made partly in Treasury bonds and stocks and partly by the sale of these same securities. The Central Leather Company represented, therefore, almost from its inception an interesting example of an operating and a holding company in one.

Beginning July 1, 1905, dividends on the preferred stock of the Central Company began to accumulate and they have been regularly paid ever since. It would seem, therefore, that the reorganization of the old United States Leather Company had been finally accomplished in 1905, and that there remained nothing to complete it except the formal merger of the two companies. The few outstanding stockholders

¹ Act of March 8, 1893. P. L. 1893, p. 121.

² *Colgate v. Leather Co.*, affidavit of M. F. Hammond, "Exhibit A," p. 146.

apparently had no alternative other than to sell their stock in the market to the agents of the directors who stood ready to buy at a liberal price, or to accede to the terms of exchange originally proffered them. In the eyes of the management, this seemed to be the natural course of events. They therefore moved forward to the last step in their plan of reorganization; they attempted to compel the remaining stockholders of the United States Leather Company to accede to a merger of the two corporations. On December 18, 1906, official notices were sent to the stockholders of both companies stating that there would be stockholders meetings of both companies on January 16, 1907. The immediate purpose of these was stated as the "adoption or rejection of a joint agreement, dated December 8, 1906, entered into by the directors respectively of the United States Leather Company and the Central Leather Company for the merger and consolidation of the two corporations on the terms and conditions of said agreement set forth and in accordance with the statutes of New Jersey."¹ The agreement mentioned was merely the agreement between the identical directors and officers of the two companies to merge. It offered the outstanding stockholders of the old United States Company the terms of exchange by which the Central Company had originally acquired the majority of the stock. Considering the fact that the directors and officers of the two companies were the same, one wonders how much freedom of contract lay behind the legal form of this agreement. Judge Finch, in his famous decision leading to the dissolution of the old trust form of combinations, made it clear that in corporation law it was essential to look behind the legal fiction involved in the cor-

¹ Notice of special meeting of stockholders, dated December 18, 1906.

poration and recognize the human motives that lay hidden beneath.* The application of this doctrine in the present instance is interesting.

In the notice to the stockholders reference was made to the statutes of New Jersey. At the time in question, 1907, these required only a two-thirds vote of the stockholders of two corporations to ratify a merger. Since the Central Leather Company then controlled over 95 per cent of the United States stock it looked as if the plan had been actually accomplished, except for legal formalities. But the "best laid schemes" of even astute corporation lawyers "gang aft agley." A firm of New York bankers, James B. Colgate and Company, entered into an agreement with a number of the outstanding minority shareholders of the old Leather Company to contest the merger. Accordingly two suits were brought with that object in view on January 12th, just four days before the special meeting at which it was proposed to ratify the agreement of merger.

It is beside our present purpose to review the litigation in any detail. One notes in passing, however, an interesting question concerning the powers of stockholders derived from the statutes under which a corporation's charter is granted. In the present case, did the statute rights of the original shareholders lapse when they transferred their stock to other persons? This somewhat academic query assumed importance because the corporation laws of New Jersey were changed soon after the formation of the company. The courts did not render a final decision on this question.

The subsequent steps of the reorganization can be told briefly. Vice-Chancellor Emory, who de-

* 121 N. Y. 582.

livered the opinion of the lower court in the application for an injunction *pendente lite* overruled most of the contentions of the Colgate complainants. He held, however, that the merger violated the rights of the preferred stockholders of the United States Company in that it required them to accept the securities of the new Central Leather Company in lieu of their claim for unpaid dividends. With this decision in mind, the directors of the two corporations then presented to the stockholders a modified agreement under date of October 10, 1907, permitting the dissenting minority stockholders to retain "any lawful right . . . to receive any dividends accrued and unpaid." The lower court then modified the preliminary injunction to the extent of allowing this agreement to be submitted to the stockholders of the companies for approval. From this decision of the lower court the original complainants, Colgate and others, appealed to the Court of Errors and Appeals. The case was argued in the higher court June 24, 1908, and a decision was rendered by Chancellor Pitney the first of March following. The court expressed itself very forcibly against the merger on the ground of the difference between the charters of the two companies. The original United States Leather Company, organized early in 1893, obtained merely an old-fashioned charter which permitted it to conduct the leather business, but said nothing about running railroads or doing a hundred other things which find their way into modern corporation charters. By 1906, however, the corporation law of New Jersey was no longer troubled by any such narrowness of vision. The lawyers of the Central Leather Company obtained for their clients a typical New Jersey charter which permitted the corporation to do anything outside

the state of New Jersey that it saw fit to do, — for instance, to operate railroads. The statutes dealing with the merger of corporations, even those connected with the Act of 1893, required that the two corporations to be merged should be organized for the purpose of carrying on businesses "of the same or a similar nature."¹ Obviously the operating of railroads is not a business of the same or similar nature as the tanning of hides altho the lawyers of the Leather Company endeavored in all seriousness to convince the court that one was incidental to the other.

On the announcement of this decision a stockholders' meeting was called in order to modify the charter of the Central Leather Company so that the charters of the two companies should more nearly agree. This was done on August 19, 1909. Meanwhile rumors of settlement out of court became current in banking circles. It was pointed out, rightly perhaps, that the general opinion of the higher court, aside from the difference in charters, was unfavorable to the proposed merger. This being so, the leather companies would do well to settle their dispute with the minority stockholders rather than risk another hearing. On September 23d, the Colgate suit was withdrawn and the terms of settlement were made public a few days later. An offer was made by the Central Leather Company to the minority holders of the old United States Leather stock which embodied an alternative. The stockholders could either accept for each share of old preferred stock \$50 in first-mortgage bonds, \$55 of the Central Leather Company preferred stock taken at 110, and \$25 in cash, or else \$50 in bonds, \$50 in preferred stock, 23½ per cent in common stock, and \$10 in cash. This second offer was identical with

¹ Public Laws, 1893, p. 121.

the original offer in the plan of reorganization with the addition of a *bonus* of ten dollars. On a basis of market values there was little to choose between these two offers and one or the other was almost immediately accepted by practically all the outstanding minority. Thus ended the protracted reorganization of the old United States Leather Company.

Altho the contestants, Colgate and others, seemed to be fighting for the rights of a small minority, a large part of those who joined the suit were actuated by no such lofty ideals of abstract justice. Many of them acquired their stock long after the plan of reorganization was made public and some even after the suit had passed through the preliminary stages of trial. These men entered the contest with no purpose of defending rights already existent. They had a speculative interest only. Reduced to its simplest terms they believed they were in a position, by restraining the merger, to compel the management to offer exorbitant terms of settlement. All reorganization proceedings are impeded by the horde of gamblers who stand ready to buy, on a speculative basis, almost any security of doubtful value and then to clamor loudly for the abstract justice of their rights.¹

In surveying this protracted reorganization one must recognize that inadequate business foresight and managerial power lay at the bottom of the failure of the sole leather combination. It was this lack of entrepreneur ability rather than the keenness of competition that prevented success. The management of a corporation with over sixty millions in assets

¹ See the Hill affidavit in the Colgate suit, where the holdings of the complainants are given in detail. A large part, perhaps even a majority, of these holdings were acquired after February 15, 1905, after the reorganization was announced. E. C. Potter and Co., J. J. Dantsig, H. Feuchtwanger, owned no stock until after the plan had been declared operative. These contestants were active in their protestations.

demands a business skill greater than that possessed by the old leather interests. They chose the wrong time to promote their enterprise, they burdened it with fictitious capitalization, and choked its life by excessive fixed charges.

The reorganization which followed these blunders is noteworthy in many respects. Altho not altogether free from objectional features, it was, nevertheless, when compared with such reorganization as the Asphalt, Malting, Shipbuilding, and Salt Companies, notably free from fraud and deceit. It turned upon a single issue, — the adjustment of fixed charges to earnings. As a result both the capitalization and the fixed charges were reduced. In this respect it is typical of most industrial reorganizations and in contrast to most railroad reorganizations. In fact, it is the simplicity of motive that makes the history of the Leather Company significant for the general study of industrial reorganizations.

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TENANCY IN THE NORTH ATLANTIC STATES

SUMMARY

Contrast between the North Atlantic and the North Central States, 105. — Relation between value of land and per cent of tenancy, 107. — Low value of land and low rate of tenancy in New England, 108. — Relation of type of agriculture to tenancy, 109. — Percentage of selected crops grown by tenants in different states, 110. — Dairy farming and tenancy, 111. — Live stock and tenancy, 112. — Fruit growing and tenancy, 112. — General decrease in tenancy during the past decade, 115. — Occasion for the decrease, 117. — Table showing tenancy for North Atlantic States for 1880 to 1910, 117.

THE North Atlantic states, nine in number, consist of the six New England states, together with New York, Pennsylvania, and New Jersey. In area they are but little more than one-fifth as large as the North Central group, while in the acreage of farm land the proportion is below one-fifth, and in improved land but one-seventh. The North Atlantic states have less than one-third as many farms as the North Central states. The East is characterized by a hilly, broken surface and comparatively thin soil, in contrast to the great level or rolling stretches with the deep soil of the middle West. The difference in topography, and the poorer quality of the soil, judged from the standpoint of grain production, help to determine the size of the farm, which in the North Atlantic states averages 96 acres and in the North Central group, 155 acres. During the past decade this difference has increased, the average size of farms of the former group growing smaller by one acre, and that of the latter group larger by 13 acres. At the same time the number of farms

in the eastern group decreased 3.5 per cent, while that in the middle western increased 1.4 per cent.

In value the eastern farms increased during the past ten years 31.9 per cent, the middle western, 113.8 per cent. At present the land alone in the North Central states is valued at about the same figure as land and buildings in the North Atlantic states, the values being, respectively, \$49.30 and \$49.95. In the production of cereals and live stock the eastern group shows not only a small production, but one lessening, as compared to the middle West. For example, there was a decrease in the wheat acreage of both sections from 1900 to 1910, but the decrease was relatively four times as great in the North Atlantic states. They are now producing a smaller proportion of the bread-stuffs of the nation than ever before. In corn acreage the North Atlantic states show for the past decade a decrease of 12.5 per cent; the North Central states show an increase of 1.1 per cent. The movement in the production of oats is similar. With respect to live stock the North Atlantic states show from decade to decade a continually decreasing proportion of the live stock of the country. For the census years 1900 and 1910, respectively, they reported 9.3 per cent and 9.1 per cent of the cattle, 9.3 per cent and 8.0 per cent of the horses, 6.9 per cent and 4.4 per cent of the sheep, and 3.7 per cent and 3.8 per cent of the swine.

There are, however, some important particulars in which the North Atlantic states rank high. The denser population encourages a more intensive type of agriculture, and in dairying, vegetable growing, and fruit growing this section holds an important place. Distinctively dairy farms are relatively more than five times as prevalent in this section as in the middle West; vegetable and fruit farms are three

times as prevalent; and in addition twice as great a proportion are classed as miscellaneous. Owing to the more intensive types of farming and the more careful adaptation of the crop to the particular soil best fitted to its production, the yields per acre in the East compare very favorably with those of the West.

All the foregoing facts affect the tenancy question. The predominating conditions point to a high percentage of ownership as compared to tenancy. To begin, the value of the land is not, on an average, very high, and in several states it is decidedly low. The percentage of tenancy follows very closely the value of land, tenancy being more prevalent where land is dearer. It is true that exceptions to the rule occur in a few instances in New England; but New England is no larger than the state of Michigan, and with so many cities, and with highly specialized types of agriculture here and there, it is no wonder that local exceptions to the general trend of tenancy should occur. Treating New England as a unit, the rank in value of land and in tenancy for the North Atlantic states correspond exactly, as the following figures show:

VALUE OF LAND AND PER CENT OF TENANCY

	Value per acre	Per cent of tenancy	Rank in value	Rank in tenancy
New Jersey	\$47.76	24.8	1	1
Pennsylvania	33.80	22.9	2	2
New York	31.97	20.8	3	3
New England	19.27	7.9	4	4

The relation of rate of tenancy to value of land may be illustrated by groups of counties within different states. Dividing the counties of Pennsylvania into

three groups, on the basis of land value, it is found that in the group with the highest value 29 per cent of the farms are in the hands of tenants; in the group next below in value the percentage of tenancy is 21; and in that with the lowest value the percentage of tenancy is 16. The same condition prevails in New York, where by the process of dividing the state into three groups of counties on the basis of value of land, the percentages obtained are for the first group 24.5, for the second, 23.9, and for the third, 18.5. It will be noticed that in New York the range in tenancy percentage is narrow, the difference between the first and the second group being especially slight. This is due in large measure to the presence of a great many suburban homes in the vicinity of New York City and along the Hudson river, which are reported as farms, tho in many instances not a great deal of agriculture is carried on in connection with them. Their values are, however, high.

In New Jersey the greatest proportion of tenancy is not in the counties with the highest land values. These counties, clustered around New York City and other large cities near by, contain a very great number of suburban homes of the kind just mentioned, and this fact, together with the influence of a considerable amount of specialized agriculture of the type accompanying ownership, has prevented the increase of tenancy.

It is in New England that the lowest proportion of tenancy on any considerable area within the older states of the Union is to be found, and nowhere else is the correspondence of low-priced land and low rate of tenancy more conspicuous. The average value of farm land in New England is \$19.27 per acre, and the per cent of tenancy is 7.9. The variation of this per-

centage from county to county is not great and does not follow very closely the price of land. The remarkable thing is the relative scarcity of rented farms.

Not only the low value of land, but also the smaller number of acres per farm is an important factor in the value of the farm as a unit. This value in the North Central states averages \$9,172, and in the North Atlantic states, \$4,805. Thus for the purchase of a farm in the latter section, not much over half the money is required that is required in the former.

However important the value per acre of land and the number of acres included in a farm may be in determining the line of cleavage between ownership and tenancy, it is certain that some types of farming lend themselves much more readily to the tenancy system than do others. And while it is not so easy to trace the connection between price of land and tenancy in the East as in the middle West, on account of the greater number of additional influences affecting the result, it is easier to identify some of these latter forces.

The contrast between the tenant farm of the East and that of the middle West is striking. In the middle West it is a little smaller than the owned farm; the buildings are decidedly inferior. In the East the tenant farm is larger by a few acres than is the owned farm, and the buildings are correspondingly more valuable. These striking differences are due to the fact that the greater proportion of tenants in the East, as in the middle West, gravitate toward the more extensive type of farming. But in the latter section this means less live stock and therefore fewer barns; the grain farming which the tenant follows requiring relatively few and inexpensive buildings. In the East the same motives and circumstances induce

many tenants, in addition to grain growing, to keep a large number of dairy cows, and dairies require good buildings. Therefore the rented farm in the eastern states has a better, at least a more expensive, set of buildings than has the owned farm. And this is one reason why the rented farm is worth an appreciably higher sum than is the owned farm.

As in the middle West, so in the East, the tenant raises more than his proportional share of the cereals, and especially is this true where the acreages are considerable. In New York the tenants grow 50 per cent more than their share of the wheat; in Pennsylvania 75 per cent more; in New Jersey 76 per cent more. Corn and oats are grown in similar tho somewhat smaller proportions by the tenants, and the same may be said of hay and forage. The important wheat-growing districts of the North Atlantic states comprise about 21 counties in Pennsylvania, 12 in New York, and 8 in New Jersey. These counties for the most part show high land values, yet in neither case are they the highest of the state. The percentages of tenancy, however, are higher than for the highest groups on the basis of value, being 30.6 per cent in Pennsylvania, 27.4 per cent in New Jersey, and 25.2 per cent in New York. With very few exceptions the greatest acreages of other cereals are found in the same counties in which the greatest acreages of wheat are grown; but the farms growing the major part of the wheat are larger than those producing the major part of the other cereals, indicating that the most extensive type of farming practised in this section is in connection with wheat growing. Thus again is emphasized the coincidence of tenancy with farming of an extensive sort.

The best agricultural showing made by the North Atlantic states is in dairy farming, and therefore the

relation of this industry to tenancy is of particular interest. It may sound a little strange to call dairying an extensive type of agriculture, but the term is a relative one; and, speaking relatively, dairying as usually carried on in the North Atlantic states may be so designated. It is at least a much more extensive type of agriculture than fruit and vegetable growing, both of which are very prevalent in these states. In the North Central states dairying is carried on mainly by owners, but in contrast to this the tenants of the North Atlantic states have charge of many more than their proportional number of dairy farms. The force of this, however, is not so evident in the number of farms reporting as in the number of dairy cows; of these the tenants reported in 1900 more than 25 per cent in excess of their proportional allotment. The prevalence of tenancy among dairy farmers is further emphasized within the districts where dairying predominates. In the ten leading dairy counties of New York, the average percentage of tenancy is 21, the same as for the whole state; but the tenants in these counties report 38 per cent more than their proportional number of cows. The question at once arises how these tenant dairymen accommodate themselves to the short and uncertain tenure by which they hold the farms, since it is not an easy matter to move the dairy equipment from one farm to another without considerable loss in the process of moving and re-adjusting. The answer is that these tenants do not move as frequently as do other classes of tenants, and (what is not the case in the greater part of the middle West) when they do move they have a reasonably good chance to find another farm with accommodations for dairying. In many instances the relation of landlord to tenant is much closer in this than

in other types of farming, the landlord frequently owning a share in the equipment and paying part of the regular expenses, the arrangement being analogous to a partnership. This higher percentage of tenancy in the dairy business than in general farming is found in all of the states of this group in which dairying is a leading business, but not, for example, to a noticeable degree in Maine and New Hampshire, where large dairies are few.

With regard to live stock other than cows and hogs, the tenant in the North Atlantic states, as in other parts of the country, has less than his proportional share. As in the North Central states, the tenants here raise relatively more hogs than do owners. It is in dairying alone that an important exception in relation to tenancy is apparent. Perhaps a word of caution may not be out of place. A large proportion (probably 75 per cent) of the dairies are in the hands of land-owning farmers; but the general low rate of tenancy in other lines gives the dairy tenant prominence.

More important than in any other part of the United States except the extreme West is the fruit farming of the North Atlantic states, and in this fact lies a considerable part of the explanation of the low rate of tenancy in this section. In the 1900 census about one farm in sixteen in this group was classified as a fruit farm, but this hardly gives an adequate picture of the situation, since a very great deal of fruit must have been produced on other farms, where it was a very important source of income, even tho not the leading one. The tenants are in charge of about four-fifths of their proportional number of distinctively fruit farms, but in quantity of fruit produced they rank much lower. Of small fruits the tenant grows com-

paratively little, and the same is true, to an even greater degree, of grapes, and hardly less so of peaches and pears. Apples are more generally grown and are found to some extent on almost all farms in the East, thus bringing the proportion grown by the tenant a little above that of the other fruits. Fruit growing and tenant farming are not compatible. The best results in fruit growing demand continuous and consistent plans extending over a period of years, a condition necessarily absent in the usual case of tenancy. Something more than the moderate extension of period of occupancy noted in connection with the dairy tenants would be required to make it feasible for the tenant to become a successful fruit grower. The tenant can leave the ordinary farm in a sufficiently discouraging condition after his own interest in it has ceased, but a fruit farm under such circumstances would suffer vastly greater deterioration. For example, a vineyard left unpruned or a strawberry bed neglected is not likely to be a source of profit during the first year following. Even orchard trees are the objects of constant solicitude where good results are obtained. It is therefore not a matter of surprise to find ownership high and tenancy low in districts where fruit is a leading crop.

It must be remembered, of course, that the price of land in census reports includes the value of all perennial plants growing upon it. Hence these reported values may cover up the fact that land not already planted to fruit, but suitable for such use, may be had at a comparatively low price. In this possibility of buying land, usually in small tracts and at a low price, lies a great part of the explanation of ownership as opposed to tenancy. It is possible under such conditions for a man of small means to acquire

ownership. But after developing such a farm he hesitates to lease it to a tenant, well knowing the difficulties and care involved in keeping it in running order. And the tenant on his part is seldom ambitious to undertake the management of such a farm. If he were, he would more likely start, in a small way, as the owner of a few acres out of which to make a fruit farm of his own.

Good examples of the low proportion of tenancy among fruit growers are found in New Jersey, where tenancy, in spite of a relatively high price of land, is decidedly low, being in some instances under half the average rate for the state. In the state of New York there is some confusion of evidence, since of the ten counties leading in fruit production five lie within and five without the main grain-growing district. For those within this district the low rate of tenancy for fruit farms is covered up by the high rate for the grain-producing farms,—very thoroly covered on account of the greater number of farms of the latter type. In the five fruit-growing counties outside the grain district the percentage of tenancy is in every instance well below the general average for the state. In the other states of the group the fruit-growing areas are not sufficiently separate from the general farming areas to admit of separate analysis based on the general statistics. Within these states, however, the proportion of fruit grown by tenants is as elsewhere low.

Another special type of farming of much importance in the North Atlantic states is that of growing vegetables. Unlike fruit farming much of this is in the hands of tenants. In the first place many such farms are in the vicinity of cities, on land high in price, often high because of possible uses other than agricultural. Land used for growing vegetables must be so thoroly

tilled that the danger of deterioration is small. The frequent moving of tenants on and off farms of this character is not so serious a drawback as it is in many other instances. The buildings are of a simple character, and not unusually great in value. The crops are almost without exception annuals. The equipment needed for running the farm is not elaborate. Under these conditions the tenant may even come and go within the year, raise a good crop, and yet suffer but the minimum loss due to the difficulties of moving and adjusting himself to a new environment. Of the number of farms in 1900 on which vegetables were the main source of income the tenants held about 14 per cent more than their proportional share. Yet, as in the case of fruit, the proportion of vegetables produced by tenants for the market is still higher. For example, they grow about 25 per cent more than their proportion of potatoes, and almost double their proportion of sweet potatoes. Tomatoes and melons are likewise favorite crops among tenants and in certain districts especially adapted to their growth, as southwestern New Jersey, about half of the total crop is grown by tenants. In making a considerable number of tests on this subject not an exception was found; the vegetable-growing business seems to be especially adapted to tenant farming.

Since 1880, the date when tenancy statistics were first gathered, the percentage of tenancy for the North Atlantic states has been low in comparison with that for the whole country, in fact lower than for any other group except the extreme West. In the Western Division conditions may properly be considered abnormal on account of the presence of many newly developed farms, and especially because so many of these have been taken recently from the public domain.

In the North Atlantic states, however, the term abnormal hardly applies, since farm land was long ago brought into use, and the readjustments which have been in progress are no greater than may be expected at any time. Especially is this true in view of the fact that the free land of the West was pretty well gone by the year 1880. For twenty years following 1880 the proportion of tenancy not only increased, but the increase was shared by every one of the five geographical divisions and by almost every state. In New England the proportion of tenancy has been low throughout, but in 1900 it could be said that there had been an important increase during each of the preceding two decades. In the North Atlantic group during that time about one farm in twenty had been taken from the category of ownership and added to that of tenancy. The portents were ominous. It was freely predicted that the fifth act of the play would represent the farmer divorced from his land. True a very few states, three New England states, for example, had shown for one or both of the decades preceding a slight tendency downward in the rate of tenancy, but only one of them had a smaller proportion than at the beginning of the period, and that an unimportant amount. Now, at the end of another ten years, every one of the nine states of the North Atlantic Division shows a positive, tho not great, gain in ownership, and corresponding decline in tenancy. Nearly three farms in every hundred passed over from the one class to the other. This amounts to a decrease of 16 per cent in the number of farms operated by tenants, in the face of an increase of 16 per cent in the number so operated for the country as a whole. In 1900 the rate of tenancy in the North Atlantic states was nearly 60 per cent of that for the United States; now it is less

PER CENT OF TENANCY 1880-1910

	1910	1900	1890	1880
North Atlantic States .	18.1	20.8	18.4	16.0
Maine	4.3	4.7	5.4	4.3
New Hampshire	6.9	7.5	8.0	8.1
Vermont	12.3	14.6	14.6	13.4
Massachusetts	8.1	9.6	9.3	8.2
Rhode Island	18.0	20.1	18.7	19.9
Connecticut	9.8	12.9	11.5	10.2
New York	20.8	23.9	20.2	16.5
New Jersey	24.8	29.9	27.2	24.6
Pennsylvania	22.9	26.0	23.3	21.2

than 50 per cent. It cannot be an accident that has brought about such a striking change in the tenancy aspect of the eastern states, including as a matter of fact, in addition to the North Atlantic group, four more states immediately to the south. Neither is this decline in tenancy a symptom of declining agriculture; for these states, notwithstanding a falling off in certain particulars, all things counted, make a good showing.

The low proportion of tenancy in the North Atlantic states is the result of a combination of causes. The most important of these are, first, the low price of land per acre; second, a set of circumstances resulting in comparatively small farms, these two facts combining to give a low value to the farm as a unit; third, the relatively small amount of farming such as lends itself easily to a system of tenancy, and in its stead a type requiring ownership of the land in order to insure good results. That there are other factors involved cannot be doubted; but these statistics seem to indicate which are the decisive factors.

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THE COMMISSION HOUSE IN LATIN AMERICAN TRADE

SUMMARY

Method of business in the trade with South America; the commission house problem, 118. — Three groups of South American countries; nature and extent of the exports to each, 121. — Ten groups of exported articles; by what method they are handled, 125. — Character and proportion of the exports handled by commission houses, 132. — Doubts whether manufacturers are wise in dispensing with such houses, 135.

MUCH has been said and written of late years about our trade relations with Latin America. A glowing picture is usually drawn of the possibilities of this trade, and appeal is made to our manufacturers for study and cultivation of the South American markets, while at the same time our apathy is censured and our methods sharply criticised. The manufacturer is urged to seek South America as his natural field, but is told that shipping facilities are inadequate; he is informed that long credits must be granted, but that there are no friendly banks to assist him and discount his bills; it is impressed upon him that his goods must be brought to the personal attention of the buyer abroad, but he learns that personal representatives in this distant market are costly and too often incompetent. Perplexed and inexperienced in foreign commerce, he is exhorted to hasten before his well-equipped and alert European competitors, already established, totally occupy the field.

Under these circumstances it is pertinent to inquire how our present annual trade with South America,

amounting to \$560,000,000 is constituted, how such a volume of business, by no means insignificant, has been built up, and how it is now handled and financed. If the export commission house takes the leading place in this inquiry, it is not because the writer, himself engaged in this business, desires to appear as its apologist, but because it is in fact the most important factor in our South American trade. The export commission house was the pioneer in developing this branch of our commerce, and even today secures and finances 70% of the business actually done. Its functions and activities deserve impartial consideration.

As a preliminary it will be advisable to examine briefly the character of our export transactions with our southern neighbors.

No part of the world, perhaps, illustrates better than Latin America the fact, often overlooked, that buying power is not commensurate with population. All of its component countries are very sparsely populated in proportion to their size and resources. Immense Brazil, with a territory one third larger than the United States, has barely twenty-one million inhabitants. Prosperous Argentina, rapidly coming to a leading position as a grain-producing and cattle-raising country, depends on only seven millions for its development, while Bolivia, twice as large as France, has not much over a million people. Yet for 1910 the total foreign trade of Latin America amounted to over \$2,000,000,000, about equally divided between exports and imports. Our share of this total was \$562,000,000, or 28%.

The purchases from us by Latin America for the year ending December 31, 1910, reached the not unsatisfactory total of \$258,580,000 as compared with only \$65,000,000 taken by the Far East with its teem-

ing millions. Mr. O. P. Austin, Chief of the Bureau of Statistics, estimates that we supply Latin America with 24% of all the goods which it imports, while we furnish the rest of the world with only 14% of its purchases from abroad. Our present trade with Latin American countries represents 19% of our entire foreign trade. If we take into consideration the fact that these countries are only just beginning to develop their enormous resources and that their population as it increases will not only maintain but will surely augment its present purchasing power, it seems clear that we have a field for the extension of our trade actually more valuable than the Far East and comparatively more valuable than Europe.

A little more than one half of our total interchange with Latin America is composed of what we import, consisting principally of tropical and semi-tropical products, which need be considered in the present discussion only so far as they are received in direct payment for exported goods. Since these products are staples, such as coffee, cacao, rubber, hard woods, hides, and ores, which are handled in bulk on a large scale, the merchants who deal in them tend to specialize, limiting their transactions to one or another of the articles. The exports, however, are more diversified in character and demand special attention. Those covering the twelve months ending December 31, 1910, were distributed among the five general divisions of Latin America as follows:—

To Haiti and San Domingo	\$8,482,000
To Cuba	53,784,000
To Mexico	63,859,000
To Central America	32,152,000
To South America	100,304,000
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Total	\$258,581,000

It might be better for our purpose to regroup these exports according to the countries in which the prevailing conditions and methods of transacting business are identical or practically the same. This would reduce the number of groups to three only and give the following totals: —

Group I. — Cuba and Mexico	\$117,643,000
Group II. — Haiti and San Domingo, Central America, Venezuela, Colombia .	50,946,000
Group III. — Balance of South America . . .	89,993,000
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	\$258,581,000

Cuba and Mexico, composing Group I, present special features, as these are the two countries of Latin America in which the greatest amount of American capital is invested, represented approximately by \$150,000,000 in the first country and by \$750,000,000 in the second country, out of a total of about \$1,223,000,000 in all Latin America. As these investments are largely in such enterprises as railways, tramlines, mines, and plantations, it is natural that the greater part of the materials and supplies required should come from the United States; "trade follows the loan, not the flag." Moreover, the linking of Mexico to the United States by lines of railroads, the close political affiliation of Cuba with us, and the extension of American banking facilities to both countries, have made it possible for the American merchant or manufacturer to do business in them on practically the same terms as in the more remote parts of the United States. Much of the business is now done direct by the manufacturers, the most successful of whom have established their own branches or selling agencies in Cuba and Mexico.

Quite different conditions maintain in the countries

of our second group. Here the prevailing commercial practice is that of barter or exchange of products without the intervention of the machinery of banking. They happen also to be the countries which have been somewhat unstable politically, and it is this very instability and the consequent lack of development of interior means of communication that have prevented the establishment of international banks and necessitated the retention of this somewhat primitive and inconvenient method of trade. The American exporter and importer engaged in business with these countries is as a rule one and the same person. The Central American importer at the coast city sends his merchandise to his clients in the interior who in turn forward to him their produce or articles of exportation. These he ships to his commission merchant in New York or New Orleans, who sells them on commission and applies the proceeds against the value of his own invoices. It is obvious that for this class of trade the New York or New Orleans commission merchant is a necessary part of the machine. It is practically impossible for the American manufacturer to do the business direct. The Central American or North Coast merchant does not order enough of a single article to warrant making a special shipment of it or to justify the manufacturer in soliciting at large expense the trade direct, in ascertaining the standing and responsibility of the buyers, and maintaining the necessary specially trained staff of clerks. The importer's orders consist of a great variety of different articles which the commission merchant buys from the respective manufacturers, assembles, and ships together, invoicing them at the manufacturer's export prices, and charging a commission for his services and the use of his credit. More-

over, the manufacturer, especially when located in the interior of the United States, has not the facilities for disposing advantageously of the various products which would be received in payment.

It is evident that this form of business has its disadvantages and should be undertaken only by those who have convinced themselves of the probity of their foreign clients; for goods are exported and pass from the owner's possession and control without any safeguard of final payment, capital is locked up in such a way that it cannot be re-employed until the transaction is liquidated, and the time of liquidation cannot be definitely fixed, since it is subject to such contingencies as the uncertainty of crops and deficient means of communication. The export commission house has undertaken these complex functions and has been doing the work well for many years.

The third group in our classification, composed of the remaining republics of South America, which have shown the greatest economic advance, is characterized by the fact that all the countries, with the exception of Ecuador, which might possibly be included in Group II, are well served with a system of international banks. Several English, German, Italian, and French banks have well-established branches in all the large cities of Brazil, Argentina, Chile, Peru, and Bolivia, and sub-branches or agencies in the smaller cities and towns. Most of these really great banks also have agencies or correspondents in New York.

Another point to be considered in regard to the countries of Group III is that the individual transactions are as a rule on a much larger scale than in Group II. This circumstance, taken in connection with the extensive international banking system, has had its influence on the methods of conducting business in

this part of Latin America. An importer need not be, and seldom is, an exporter. The articles of export from these countries, such as the corn, wheat, flour, cattle, sheep, and animal products of the Argentine Republic; the coffee, cacao, hides, and rubber of Brazil; the nitrate of soda and copper of Chile; the cotton, sugar, copper, and fertilizers of Peru; and the tin and rubber of Bolivia, — are each of sufficient importance and are handled on a sufficiently large scale to be specialized. Efficient cable service enables the large exporter to know exactly what price he can receive in New York, London, or Hamburg for his wheat, coffee, or rubber and what he can afford to pay the farmer or gatherer for his produce; and the international banking facilities are so ample that he can receive the actual cash for his shipment as soon as it is placed on board the outgoing steamer. Thus the producer also can obtain the full market value of his produce in cash, less the middleman's commission, and has no need to ship on consignment and wait months for his money. For the same reasons, the American exporter to these countries can draw drafts against the shipments of merchandise that he makes — they may be at thirty, sixty, or ninety days sight or even longer time — and discount them with the foreign banks, provided his credit is good in London, Hamburg, or Paris, or at least receive advances on account. He need not be also an importer.

It is evident that these are conditions which may tempt the manufacturer to seek direct trade without the intervention of the commission merchant; but he has other factors to consider before definitely committing himself to this policy. He must decide whether his product is one that can be shipped in bulk or in such quantity or value that it can go by itself, whether

the margin of profit in connection with the prospective demand is sufficient to cover the necessarily large selling expenses and the maintenance of a special clerical staff both abroad and at home, and whether his banking facilities are such that he can grant the required credit without tying up too much of his capital.

To summarize the conclusions in regard to the three groups of Latin American countries: Group I offers special attractions to those manufacturers who wish to do a direct business, Group II presents no such inducements to them, and Group III is an open field for the commission houses and for manufacturers of a certain class if they can comply with certain fixed conditions. It will be interesting to see how the actual shipments to these different groups and the channels through which they pass bear out these findings.

A large proportion of our shipments to Latin America may be condensed and classified under ten general headings. It can be seen at a glance that they cover lines of products and manufactures in which the United States enjoys an undoubted advantage and which are most free from competition with the rest of the world. Some of them are necessities of life which cannot be purchased elsewhere. The following are these ten general headings and the percentage which each represents of our total exports to Latin America:—

Food Products	\$33,800,000	13 %
Steel Products & R. R. Material	21,300,000	8¼%
Lumber & Office Furniture	17,500,000	6¾%
Petroleum Products	12,025,000	4¾%
Agricultural Implements & Twine	10,850,000	4 %
Boots, Shoes & Leather	8,000,000	3 %
Electrical Machines & Instruments	7,000,000	2¾%
Cotton & Cotton Goods	6,325,000	2½%
Typewriters, Phonographs & Sewing Machines	4,000,000	1½%
Naval Stores	2,500,000	1 %
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	\$123,300,000	47½%

The remaining 52½% of our shipments, on the other hand, is made up of a great variety of manufactured articles, very few of which attain individually sufficient volume or value to be specified separately in our statistics. The most conspicuous group among them is Builders' Hardware, amounting to \$14,500,000 or 5½% of our total exports, and comprising all kinds of tools, cutlery, and general hardware. Shipments of \$4,000,000 worth of coal to Cuba and Mexico are also prominent, but can be attributed without doubt to the American industrial interests in these countries, as practically no coal was shipped to other parts of Latin America.¹ In fact, it is almost impossible to get other than American engineers to use American steam coals, on account of the special care required in tending the fires. It is safe to say that practically all of the remaining unspecified 45% is the result of orders taken by the export commission houses and shipped and financed by them.

Analyzing a little more closely the items included under each of the ten general headings, some interesting features appear. It will be learned that \$11,000,000 of meat products and lard went to Cuba and Mexico alone, where the big packing houses have established their own branches or selling agencies. The remaining two and a half millions were taken by the countries of Group II and Group III and were shipped through the commission houses. Practically all of the \$4,000,000 of wheat and corn were also for Cuba and Mexico, but must be put to the credit of the commission houses, as is usual with all raw products subject to daily fluctuations in price. Out of the \$11,700,000 of flour,

¹ Since the beginning of the current year several full cargoes of coal have been shipped to Brazil. They have, however, all been destined for the extreme north or extreme south of the country, where American interests are in control of some of the railroads.

Cuba accounted for four and a half millions, the balance being divided about equally among Brazil, Central America, and the rest of South America. It is safe to say that all of the Cuban business was done direct by the millers, while all the sales to the remainder of Latin America were made through the export commission houses. Before the Spanish-American war all the business to Cuba also was handled by the commission houses; at the close of the war, however, the island was overrun by American drummers, among them representatives of millers, both large and small, seeking an outlet for their surplus and not always too scrupulous to refrain from selling a quality which might not be suited to the purpose of the buyer.

With cotton-seed oil the situation is similar. Mexico consumed over one half of the \$3,000,000 worth that was exported, receiving it direct from the crushers. Argentina was next in importance, taking its supplies through the commission houses, as did the rest of Latin America.

In connection with this branch of our export trade, it should be noted that up to a few years ago Brazil was a heavy consumer of American lard and bacon. Today the exports, except to the Amazon valley, are practically nil, as the Brazilian home product supplies that country's want. The same is true of cotton-seed oil. In the case of flour the Argentine product has pushed the American, which formerly controlled all Brazil, back half way up the coast, so that our exports today, except in limited quantities, seldom reach south of Pernambuco. The restriction of these three items represents a considerable loss of trade to the export commission house.

The principal single item under the exports of steel products and railroad material for the past year (1910)

was steel rails amounting to a little more than \$5,000,000; this naturally includes rails for plantations and industrial purposes, for tramlines and steam railways. The plantation and industrial rails were practically all purchased through the commission houses, the other rails were for the most part sold direct by the manufacturers to the tram or railroad companies or their financial agents, in many cases located in Europe. Nearly \$2,000,000 of the total quantity was taken by Mexican railroads largely controlled by American interests and by industrial companies backed by American capital. Rails to a value of \$500,000, mostly for industrial purposes and financed by export commission houses, went to Central America, and only \$2,500,000 of value to the rest of South America. Yet Brazil alone imported from various countries \$6,500,000 or more, of which our share was only \$900,000. Belgium secured the bulk of the business. Freight and passenger cars are next in importance with a total of \$4,780,000, of which again the greater portion, \$3,000,000, was taken by Cuba and Mexico. This business was done either direct by the builders or through export houses which were the special agents of the builders. Four million dollars would represent the total shipments of steel wire, handled almost entirely by the commission houses and well distributed among the three groups, Group I taking about \$1,500,000, Group II, \$750,000, and Group III, \$1,750,000. The \$3,000,000 of steel and iron pipe, however, went entirely to Cuba and Mexico, with the exception of \$400,000 to Central America, which would indicate that we were not in a position to compete with Europe in this article and obtained what trade we did only on account of American capital investments or proximity of the market. Structural steel has been exported from

the United States only in the last few years, but last year attained the total of \$2,500,000. This development is due largely to the establishment of selling agencies by the Steel Corporation in some of the principal cities of Latin America under the charge of engineers who can give expert advice. These agencies are supplied with a certain amount of stock of standard shapes from which prompt delivery can be made. Thus the large buyers are taken care of direct, and only the smaller dealers are left to the commission merchant. Locomotives to the value of \$1,700,000 complete this second general heading, and in this instance most of the business was done by some export commission house protected by an exclusive agency arrangement with the manufacturer.

In the third general class, composed of pine, spruce, and oak lumber, and office furniture, the United States has little or no competition. With the exception of a few full cargoes sent direct to Cuba by the mills and some few direct transactions in furniture, this considerable trade is in the hands of the commission houses.

The Argentine Republic is the largest importer of agricultural implements and binder twine, taking a total of \$8,560,000 in value, of which at least 75% was shipped direct by the manufacturers, the most prominent being the International Harvester Company, which with its immense resources can afford to grant the extended credit required for the sale of harvesting machines and can furnish the necessary staff of technical experts to see that they are properly set up and operated during the reaping season. Cuba and Mexico's \$900,000 can also be considered direct business, while the remaining \$1,350,000 must be nearly all placed to the credit of the export commission houses.

The total exports of petroleum products are composed of about \$500,000 of paraffin; \$2,000,000 of lubricating oil; \$1,500,000 of crude oil; and \$8,000,000 of kerosene and naphtha. The entire amount of the paraffin and crude oil was taken by Cuba and Mexico direct from the producers or their agents; a large proportion of the lubricating oil was also sold by the direct agencies of the refiners. The case of kerosene and naphtha, however, is quite different. As long as the Standard Oil Company and its allied companies were alone in this business, they refrained from seeking or accepting direct business in Latin America, allowing all the transactions to pass through the hands of the export commission houses. During the last few years, however, independent refiners have entered the field and by direct sales and shipments on consignment have secured a constantly increasing share of the trade. As this is competition of a class which cannot easily be met by a middleman who has no control of the basis price, the probability is that this important item of our export trade will soon pass out of the hands of the commission merchant through the establishment of direct selling agencies of the Standard Oil Company.¹

Over five-eighths of our business in boots, shoes, and leather was with Cuba and Mexico, which have been overrun with salesmen from our shoe and leather factories; the balance has been handled through the middlemen.

Of our exports of electrical machinery and instruments it will be found that nearly \$5,000,000 out of the total of \$7,000,000 were taken by Mexico and

¹ Since this article was written (July) the Standard Oil Company has chartered for its own account nine steamers to carry to the River Plate full cargoes of kerosene and naphtha in cases, which will be marketed through its own selling agencies. Two of these steamers have already been despatched.

Brazil. The large exports to these two countries can be traced directly to the influence of American capital investments in Mexico and to the fact that a large American and Canadian Company controls all the electric traction, lighting, and power privileges of Rio de Janeiro and São Paulo, and that the similar privileges in other Brazilian cities are held by a strong Brazilian firm representing some of our electric manufacturing companies. Cuba's share was three quarters of a million dollars, due also to the influence of American and Canadian capital. The remaining \$1,250,000 was distributed among the other countries of Latin America and was the portion secured by the commission houses.

The reasons for our comparatively poor showing in the exports of cotton goods have been discussed too often to require consideration here. Mexico took all of the \$700,000 worth of raw cotton exported and only \$225,000 of the manufactured product. She, as well as Brazil, has well-established mills of her own that supply her wants in the coarser grades of cotton goods, the only class in which America appears to be able to compete with Europe. The greater portion of the remainder went to Cuba, Central America, and Colombia, the nearby countries, and to Chile, which, having no mills of her own, finds the United States nearer in point of time as a source of supply for rough goods. It is safe to say that under this heading only \$1,000,000 out of the total of \$6,000,000 was sold direct by the manufacturers.

The typewriters, phonographs, and sewing machines that are sold in Latin America are patented articles controlled by very large, strong companies. The business was first developed by the commission houses, but once a foothold was secured, these companies

took it into their own hands, establishing their agencies and depots in the principal cities of Latin America, even going so far as to sell to the individual buyer on the installment plan. The small, out-of-the-way places they have still left to the commission merchant.

The United States has practically no competition in rosin and turpentine, the principal items of naval stores, and the amount exported is simply a question of demand. As with most staple products the intervention of a commission house is usual and, in fact, almost necessary.

The above analysis, tho only an approximate estimate, indicates that somewhat more than 70% of our total exports to Latin America is at the present time handled by the export commission houses. If Cuba and Mexico were excluded from the count, the percentage would be much larger. The thirty per cent of the total that has been lost by the commission merchant is accountable to the direct sales by manufacturers and packers to nearby and closely allied Cuba and Mexico, to the materials and supplies furnished to enterprises financed by American capital, and to the establishment of their own relations in the principal centers of South America proper by such large combinations as the International Harvester Company, the Steel Corporation, the Singer Sewing Machine Company, and a few other large companies. The petroleum products will also soon be removed from the open market, and the modern tendency of large corporations to market their products through their own selling organizations may lead some of the larger manufacturers of sundry machinery to open their own branches in countries like Brazil and the Argentine Republic. Thus the field narrows for the commission merchant. It is a serious question whether,

under the present method of trade, he can afford to handle and finance the thousand and one articles, not worthy of specification, that go to make up 45% of our entire exports, if his trade is limited to them by the elimination of the bulk or staple articles which require little labor to sell and mount quickly in value.

Up to the present time the commission merchant has earned on the large turn-over in staple articles sold in large quantities sufficient to enable him to maintain his offices and salesmen in the principal cities of Latin America, employ the expert staff necessary in his home office, cover his general running expenses, and accept and execute orders for general merchandise on the same basis of profit or commission as the bulk goods. It does not require any more labor or time to secure an order for ten thousand cases of kerosene valued at ten or eleven thousand dollars than it does to take an order for five hundred dozen of padlocks worth only five hundred dollars. In the first case the commission merchant might earn \$250, in the second case, only \$12.50. In order to gain a sufficient turn-over in general merchandise sold in small quantities he would be obliged to increase largely his selling force and also his clerical staff, as the detailed work of handling such business is enormous. Such expansion would involve a great increase in expenditures, which could not be undertaken under the prevailing percentage of profit; yet that percentage is extremely difficult to increase unless the manufacturers make radical changes in their present methods of bringing their goods to the attention of the ultimate buyers and of negotiating their sales.

The advice that is so indiscriminately distributed to manufacturers to seek direct connections abroad may not only in some cases cause considerable capital

loss to the manufacturers but, if generally followed, might also eventually lead to a decrease rather than an increase of our export transactions. Hitherto it has cost the general manufacturer nothing to market his goods in Latin America beyond the trifling expense of publishing a few special catalogues. He has received his orders from the export commission houses and has been paid prompt cash for his goods as soon as they have been placed on board the steamer in New York or other ports of shipment. He has also been relieved to a great extent from claims from foreign buyers, when the goods shipped are of inferior quality, or not according to order, or not shipped on contract time. Since the buyer looks first to the commission merchant and holds him responsible for any deviation from his contract of purchase, the export commission house has shouldered the burden. It is the commission merchant, furthermore, who has stood all the expense of maintaining agents and salesmen in the principal commercial centers of Latin America, of sending special travellers from time to time, of employing experts acquainted with foreign languages to attend to the details of shipping, correspondence, making up of commercial and consular invoices, in which the slightest mistake or deviation from the prescribed form will involve heavy fines in the foreign custom houses, who advances the money to prepay ocean freight and charges, and who risks his capital in granting the long credits required.

The commission merchant not only expends and locks up a large sum of money in the machinery for conducting his business, but also, no matter how good his banking facilities may be, is obliged to tie up as margin in banks an amount of money proportionate to his transactions, and always has a contin-

gent liability for the entire amount of his transactions until they are actually liquidated, a period of time averaging five or six months. Hence a commission merchant whose sales may average \$100,000 per month is constantly carrying a liability of \$500,000 or \$600,000. The fact that the sales are to various countries, to different towns, and to different customers in each country, with different dates of maturity, and consist of many different classes of merchandise, so that a general "debâcle" is practically impossible, is the only reason that he is able to discount his bills with any freedom at the European banks. An individual manufacturer unless exporting on a very large scale could not expect to obtain the same banking facilities.

What conditions, then, confront the manufacturer who decides to cultivate a direct trade with Latin America, and undertakes first to get a foothold in Brazil, Argentina, and the West Coast countries? He already receives a certain amount of business through the commission houses, to whom he has named a cash price covering a manufacturing profit but probably lower than his domestic price, since he has had no selling expenses to consider, and has been paid cash. If he believes that his business can be increased by the elimination of the middleman and by direct sale, he must employ a competent salesman, who understands his product and speaks Spanish and Portuguese, at a salary which may run from \$2500 to \$3000, and he must send him to South America. It will take a year to cover the countries in question on a preliminary trip, as stays of a month or even two months may be necessary to accomplish anything in some of the principal cities. The cost of travelling will average at least ten dollars per day. In the first

town that his traveller visits, he will find that the importer has been receiving his goods at exactly the price paid by the commission merchant, plus the freight charges and a commission of only $2\frac{1}{2}\%$ or at the most 5% , and that he is given ninety days time after the arrival of the goods in which to make payment, being charged interest at the rate of 6% per annum. Unless he can continue to obtain the goods at the same price and on the same conditions he will not place his orders. Let us assume that the manufacturer conforms to the conditions and is successful enough to book orders to the extent of \$100,000 during the year. When he comes to execute the orders he finds that he must employ a special clerk to make out his invoices and consular papers in Spanish and Portuguese, at a salary of at least \$1000 a year, and in addition, if he is not located in New York, he must pay some broker to handle the shipping papers and details. He cannot afford to withdraw \$50,000 from his manufacturing capital and seeks to discount his ninety days sight bills on the foreign buyers. His local bank refuses to have anything to do with them, or, if it takes them, must perforce pass them through one of the foreign banks having agencies in New York and must charge the manufacturer a double discount. If he is located in New York or its vicinity, he may be able to arrange for partial discount direct with the foreign banks, but will undoubtedly have to leave a substantial margin undiscounted which will curtail his manufacturing capital. When he casts his balance sheet at the end of the year, he finds that his sales may have increased, but he has incurred \$7000 or more of extra expenses and earned only an additional \$2500 to offset them, and has tied up a portion of his working capital. The difference goes against his manufacturing profit. He

pockets his loss and in the future is likely to look with an unfavorable eye on direct export business. In the meantime the commission merchants have ceased to solicit or accept orders for his goods and have substituted a competitive line, or if it is a non-competitive line, have dropped that class of business entirely. If, on the other hand, he recognizes at the start that he must raise his prices in order to cover the extra expenses, he is likely to defeat his object and diminish his sales.

This is by no means an unusual case; and such experiences go far to explain the slow growth of that direct trade which many writers and speakers advocate. It is not an exaggeration, in my opinion, to say that such indiscriminate advice has elements of real danger.

The advocates of direct business, however, will argue that the commission houses do not vigorously push general lines of manufactured goods. The fact is that they do, as a rule, seek such business up to the limit of their capacity and margin of profit, but they cannot afford under the present conditions to devote as much time and effort as they would desire when this branch of trade yields no more commission or profit than staple or bulk articles. It may be asked why the commission merchant does not increase his commission or percentage of profit to a point that will compensate him for extra effort? Principally because the over-eagerness of the American manufacturer to sell makes American general merchandise the least profitable of any, not only for the foreign merchant who imports to resell but also for the export commission merchant or middleman. Furthermore, the American manufacturer, as a class, has not yet learned to respect the rights of his middlemen in his export transactions as he does in his domestic

trade. Any merchant in Latin America, be he big or small, worthy of extended credit or on the verge of bankruptcy, can write to almost any American manufacturer and be quoted the lowest export price for his product down to the last cash discount; catalogues are sent abroad indiscriminately, even to individual consumers, showing the exact price at which the largest jobbers can purchase the articles advertised. This simply illustrates a lack of experience in foreign trade and contrasts with the protection which European manufacturers, such as the German, have learned to give to their recognized factors in the more highly developed organization of foreign commerce.

Such, then, is the situation. A large business to Latin America has been built up largely through the enterprise and activity of the export commission houses; the action of various agencies is gradually removing from the hands of the commission merchant many lines on which he depends to give his business sufficient volume to carry his heavy fixed expenses; deprived of those lines, he might not earn a net profit on the smaller sundry lines sufficient under the present conditions properly to compensate for his capital risk. Eliminate the commission house and many manufacturers could not afford to do a direct export business, and such as could would do it at a greatly increased expense and be obliged to raise their selling price or curtail their profits, thus either increasing the already established competition from Europe or diminishing the desirability of engaging in foreign trade.

The conclusion seems to be clear. If, as is desirable and will ultimately be necessary, we are to develop our foreign market for goods competing with the manufactures of Europe, we must study with care all the

conditions in each individual case. When the manufacturer is producing on a large scale and is determined to build up a permanent foreign connection he may profitably enter the field. This is, in fact, the present tendency in the growth of direct sales to Latin America. But for the use of the greater number of smaller manufacturers, selling diversified products, there is at hand an admirable mechanism in the export commission house. There must be, however, intelligent coöperation on both sides, and due consideration for the services of the middlemen.

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REVIEWS

FISHER'S PURCHASING POWER OF MONEY

Professor Irving Fisher's book, *The Purchasing Power of Money*,¹ furnishes an encouraging example of the striking and important results which may be gained in a well-worked field of economic science, even when no revolutionary changes in fundamental principles are proposed. The first half of the volume contains, as the author himself points out, simply a restatement and amplification of the quantity theory, with no essential modifications of the conclusions reached by the classical economists. At every stage of the discussion, however, the reader will find much of value; and taken as a whole it is easily the most comprehensive and satisfactory treatment of the subject which has been formulated. Then follows a brilliant attempt at the statistical verification of the theory, which in some directions opens up a new field for further investigation. In the final chapter, an interesting proposal is brought forward, designed to secure greater stability in prices; a proposal which should prove revolutionary enough to satisfy the most progressive of economists.

In the exposition of the quantity theory, an analysis is first made of the antecedent influences which cause changes in the five familiar magnitudes of the equation of exchange, — the amount of money in circulation, deposits subject to check, their respective velocities of circulation, and the volume of trade. The summary of these influences by the author at the beginning of chapter VIII cannot be improved upon, and may be quoted in full (pp. 149–150):

¹ *The Purchasing Power of Money, Its Determination and Relation to Credit, Interest, and Crises*, by Irving Fisher, Professor of political economy in Yale University, assisted by Harry G. Brown, Instructor in political economy in Yale University. New York: The Macmillan Co., 1911. (pp. xxi + 505, \$3 net.)

"Purchasing power has been studied as the effect of five, and only five, groups of causes. The five groups are money, deposits, their velocities of circulation, and the volume of trade. These and their effects, prices, we saw to be connected by an equation called the equation of exchange, $MV + M'V' = \Sigma pQ$. The five causes, in turn, we found to be themselves effects of antecedent causes lying entirely outside of the equation of exchange, as follows: the volume of trade will be increased, and therefore the price level correspondingly decreased by the differentiation of human wants; by diversification of industry; and by the facilitation of transportation. The velocities of circulation will be increased, and, therefore, also the price level increased by improvident habits; by the use of book credit; and by rapid transportation. The quantity of money will be increased, and therefore the price level increased correspondingly by the import and the minting of money, and, antecedently, by the mining of the money metal; by the introduction of another and initially cheaper money metal through bimetallism; and by the issue of bank notes and other paper money. The quantity of deposits will be increased, and therefore the price level increased by extension of the banking system and by the use of book credit. The reverse causes, of course, produce reverse effects."

All these propositions are set forth clearly and in the main convincingly. More attention might, indeed, with advantage have been given to certain problems, raised by the issue of bank notes under varying legal provisions; tho a complete analysis would have required much space, and perhaps belongs more properly to a treatise on banking. The analysis of international gold movements also leaves something to be desired in completeness. On grounds of abstract theory issue might be taken, for example, with the unqualified statement that the imposition of tariff duties invariably tends to establish a higher price level. While true for the world at large on account of the lessened volume of trade, it is at least possible that high duties by diverting capital and labor into relatively unproductive

channels may have a contrary effect in the country adopting this policy. The removal of duties by the United States, if it should lessen materially the cost of production in many industries, might in the course of time greatly stimulate our export trade. This increase in exports might exceed that of imports favored by the removal of duties, and in consequence gold imports, and a change in relative price levels would follow, — a higher level here, a lower level elsewhere.

The most illuminating conclusions of the first half of the book are brought together in the eighth chapter, in which the various interactions of changes in each one of the factors in the equation of exchange upon the others are restated and amplified. Upon this subject Professor Fisher is properly at great pains to distinguish between interactions during transition periods, and those which exert an influence normally or in the long run. The following are the causal relations which he finds after transitions are completed. An increase in the supply of money tends to increase deposits subject to check proportionally, because banks increase loans and consequently deposits until the customary relation of the latter to their cash reserves is reached. If confined to a single country, as an increase in the money supply and deposits, an increase in deposits relative to money, and an increase in the velocity of either money or deposits, all tend to raise prices; money is, in consequence, dispersed, either through export, thus slightly raising world prices, or through its greater use in the arts. Lastly, an increase in the volume of trade, which directly tends to lower prices, also tends to increase velocities and the use of deposit currency relative to money, and consequently to neutralize in some measure the falling price tendency. With these propositions, as with those relating to antecedent influences causing changes in the factors in the equation of exchange taken singly, I find myself in entire agreement.

Turning now to transition periods, an additional series of interactions is discovered. Unfortunately the analysis at this stage lacks somewhat in that comprehensiveness

which is one of the distinguishing characteristics of the book as a whole. The transition effects of changes in the supply of money are worked out in detail, but an equally painstaking analysis is not made of the effects of changes in the other factors in the equation of exchange. It is shown very clearly and with ample illustration that the transitional effects of an increase in the supply of money are a more than proportional increase in deposits, some increase in the velocity of both, together with some slight increase in the volume of trade. Hence the transitional effect on prices of an increase in money is greater than its normal effect. Professor Fisher attributes these phenomena solely to the failure of the rate of interest to keep pace with the advance in prices. Borrowers reap an advantage which encourages further borrowing, and lenders, equally regardless of fundamental considerations, for a time gratify the demand. Trade is brisk, and all the transitional effects noted before appear. But sooner or later a day of reckoning comes. "When interest has become adjusted to rising prices, and loans and deposits have reached the limits set for them by the bank reserves and other conditions, the fact that prices no longer are rising necessitates a new adjustment. Those whose business has been unduly extended, now find the high rates of interest excessive. Failures result, constituting a commercial crisis" (p. 73).

The reasoning here seems to be based upon two assumptions, which are far from being satisfactorily or convincingly proved: first, that it is the failure of the rate of interest to keep pace with rising prices that causes the unhealthy expansion which precedes crises; and second, that in the absence of such an increase in the money supply as would permit some normal increase in prices, no transitional increase of serious moment would be possible. Many other causes, however, in addition to the failure of the rate of interest to advance adequately, contribute in the creation of the unhealthy expansion which precedes the outbreak of commercial crises. The uneven advance of commodity prices, to say nothing of the lagging behind

of wages and salaries, may well be given an equal measure of importance. Further, when wages and salaries do advance the advance is apt to be very general, while a considerable and increasing variety of commodities and services are sold at customary prices, susceptible to little or no change during a short period of years. But space lacks for a consideration in detail of this most difficult subject. Enough has perhaps been said to indicate the fragmentary character of the analysis which Professor Fisher has brought forward.

The second assumption, that price changes of a disturbing character would not occur in the absence of the initial stimulus of an increase in the supply of money, would seem to be equally untenable. It would seem entirely possible, tho no doubt less probable, that through the increase of the velocity of the circulation of money and deposits, and the expansion of deposits upon a stationary cash foundation, an increase in prices might occur sufficient to give rise to all the troubles which culminate in a commercial crisis. Further, it may be noted that the possible range of price fluctuation, from causes other than changes in the money supply, is apt to be particularly wide in countries in which general conditions and the temperament of the people favor enterprise and speculative activity. In such countries deposits fall far below the customary ratio to cash reserves in periods of trade reaction, and there is therefore this slack to be taken up in the periods of trade activity, in addition to that expansion of deposits beyond the customary ratio which usually precedes the outbreak of a panic.

The potent influence of the increase of the supply of gold, during the last fifteen years, may perhaps explain Professor Fisher's failure to give specific attention to transition changes in velocities and deposits independent of changes in the supply of money. This incompleteness in the analysis is found conspicuously in the chapter devoted to the historical verification of the quantity theory. As an account of price movements during the last five hundred years, the chapter is excellent. It is easy to show that pronounced price changes

of long duration have been accompanied by corresponding changes in the supply of money. But the chapter contains also a summary account of crises, which leaves the impression that all commercial crises have been preceded by an increase in the supply of money, either specie, government paper, or bank notes. But this is a conclusion to which there are notable exceptions, the most striking of which is the crisis of 1873 in the United States. Professor Fisher does not, indeed, regard it as an exception. He calls attention to the increase in bank note circulation between 1868 and 1873, from \$295,000,000 to \$341,000,000, but he does not mention that in these years an almost equivalent volume of 3 per cent certificates were retired. These certificates did not circulate as money, but as they were used for bank reserves, their retirement involved a contraction of the available money supply. Again, the increase in the stock of money which preceded the crisis of 1889 in France, of 1890 in England, and 1893 in the United States, was not one which in itself made possible an increase in prices, but rather the reverse. Such increase as occurred would seem to have been due entirely to the expansion of deposits relative to checks, and perhaps also to increasing velocities of circulation. The experience of those years furnishes an interesting instance of the possibility of temporary advances in prices, culminating in a crisis, during a period when the money supply was not increasing fast enough to prevent, in the long run, a lowering of the general price level. Finally it may be observed that during the last fifteen years, notwithstanding the increase in the stock of money, both England and France have escaped crises. After all, general economic conditions, the temper of the business community, and banking operations are fundamental factors to be considered in the analysis of crises. Monetary changes pure and simple would seem to be, at the most, a contributing but not the controlling factor.

The most interesting and valuable part of the book is most certainly chapter XII, which with its appendix makes up nearly a fourth of the volume. Professor Fisher here

in most brilliant fashion subjects the quantity theory to the test of exact measurement, taking for the purpose the period from 1896 to 1909. He finds a remarkably close approximation between the actual course of prices and that which was to have been expected from estimated changes in the factors of the equation of exchange. A similar attempt was made by Professor Kemmerer, in his *Money and Credit Instruments* (1905). Thanks to the investigations of the National Monetary Commission and to some special investigations made for him by United States Treasury officials, the data made use of by Professor Fisher are much more complete than those available to his predecessor. In particular, he has had the advantage of the two investigations conducted by Professor Kinley regarding check and cash payments, one for the beginning of the period taken for analysis and the other for the end. With these advantages, coupled with numerous improvements in the methods of calculation, Professor Fisher reaches estimates which doubtless make a much nearer approach to actual facts than those resulting from the pioneer work of Professor Kemmerer. Moreover, Professor Fisher makes estimates which had not been attempted by his predecessor, for certain magnitudes in the equation of exchange. Professor Kemmerer estimated the volume of check transactions ($M'V'$), but did not offer any separate estimate of the volume of deposits subject to check (M') and the velocity of circulation of deposit currency (V').

The most important contribution made by Professor Fisher to the statistical verification of the quantity theory is in connection with the velocity of circulation of money. Here something more was required than the use of more comprehensive data and the refinement of existing methods. An entirely new method is worked out for estimating what has generally been thought beyond direct calculation. The analysis, once made, is simplicity itself, but on that account the immense debt of all students of monetary problems to Professor Fisher is in no wise lessened. The amount of exchanges, effected by means of money (MV), once

determined, the velocity of its circulation is arrived at simply by dividing that magnitude by the amount of money in circulation. But no previous writer has been able to devise a satisfactory method for estimating the amount of exchanges effected by means of money. This magnitude is, according to Professor Fisher, equal to the total money deposited in banks plus the total money wages paid out plus a small miscellaneous item. In countries where deposit banking is highly developed "money, like checks, circulates in general only once outside the banks; but when it passes through the hands of non-depositors (which practically means wage-earners) it circulates once more, thus adding the value of wage payments to the volume of ordinary money circulation, which is equal to the flow of money through banks" (p. 287). A few items composing the small miscellaneous total of money which circulates more than twice may be mentioned to illustrate their obvious insignificance:—the till-paid expenditures of "commercial depositors" in excess of money withdrawn by them from banks; money receipts of non-commercial depositors pocketed instead of being deposited; money payments between "commercial depositors," between "other depositors" and those between "non-depositors." The amount of money withdrawn from banks in 1909 is estimated by Professor Fisher as \$20.7 billions, and the amount of money expended in wages at \$13.1 billions, while the total of various miscellaneous items is estimated at only \$1.3 billions. The relative amount of the latter figure is so small that even if the estimate is far from exact, it would make little difference in the total of money payments, and accordingly in the velocity of the circulation of money. The data for the calculation of the amount of money withdrawn from banks are based upon Professor Kinley's investigations for 1896 and 1909. For other years the figures are interpolated. The amount paid out to wage-earners and other non-depositors is estimated largely from Census and Bureau of Labor returns.

Finally, the volume of trade and the level of prices are

calculated from a variety of data which are brought together in the appendix, but, as no new principles or methods are involved, extended comment is unnecessary. Future investigators, using more adequate data, and further refinements of method, will no doubt arrive at more accurate estimates of these as well as the other magnitudes of the equation of exchange. Professor Fisher has laid a broad and deep foundation. A long step has been taken toward the reasonably exact measurement of price-making factors.

In the final chapter, Professor Fisher attacks the problem of "making purchasing power more stable." Among the remedies which have been proposed at various times in the past, he discovers merit only in the tabular standard. But the complications that would follow its partial adoption make it unsatisfactory, and there seems no way of securing its simultaneous adoption universally by all individuals, as well as by all countries. The remedy which he proposes would require no change whatever in the circulating medium or in the methods of making payments between individuals. International agreement alone would be needed. The proposal is a combination of the tabular standard with the gold exchange standard. Such an arrangement, it is argued, would be not unlike in principle that already set up in India, the Philippines, Mexico, and Panama. "As the system is now operated the coinage is manipulated to keep it at par with gold, that is, to follow the fluctuations of the gold standard wherever they may lead." Manipulate the par of exchange to keep pace with the tabular standard and stable prices will be secured. The steps necessary to be taken in order to establish the system are simple. First, the mints of the world must be closed to free coinage of gold, thus giving coined gold a value higher than its bullion value; second, an international statistical office would be necessary to compute index numbers in the ordinary way. Dividing the market price of gold by the index number would give an official price for gold. At this official price the government of some one country, agreed upon for the purpose, would either buy or sell gold at the option of the

public. This official price would be below the market price, if prices had advanced, and above it in cases of falling prices. In the former instance, bullion would be sold by the government for coin, thus bringing about contraction; in the latter case, by the purchase of gold the supply of money would be increased. By this process the purchasing medium of the one pivotal country would be either contracted or expanded to the extent necessary to maintain a stable price level. For the rest of the world, through exchange dealings with the gold manipulating country, price levels would also be made permanent.

One experiences serious difficulty in forming a judgment on the merits of this proposal, because it is presented merely in outline, occupying but a scant ten pages in the book. It is to be hoped that on some future occasion Professor Fisher will work out the plan in detail, and therefore the comments which I shall venture to make are to be regarded primarily as suggestions of points upon which further information is needed, and not necessarily as fatal objections to the plan itself. In the first place it may be noted that the plan does not make clear the conditions under which additions are to be made to the gold coinage by the different countries. Whether they are to come through gold exports from the country chosen as the pivot of the system, or whether each country is to coin gold, adjusting the amount with reference to the exchange situation, is not stated. In either case, it may be questioned whether the trade and financial relations of all countries are sufficiently close with any one of them to render them all directly and immediately sensitive to changes in its level of prices. Moreover, there might occur changes in the level of prices peculiar to the country selected to register changes in the official price of gold. The foreign trade position of the country might change, and in consequence changes in its price level relative to those of other countries would be necessary. A local speculative movement might also be the occasion of change in the price level. Whatever the cause, the proposed plan would seem to involve a corresponding change in the monetary situation throughout the world.

In the second place, the adjustment of prices through changes in the market price of gold would seem to subject the business of the world to a never-ending succession of abrupt changes. Professor Fisher argues that little disturbance would be caused by changes in the par of exchange. The opinion may be ventured that those who have been engaged in trade with South America would express strong dissent to such a conclusion.

There remains for consideration what would seem to be the most formidable objection to the plan. Once limit the coinage of gold, and the value of gold coin and gold bullion may diverge to an indefinite extent. If during the last fifteen years prices had been kept stationary, only a small part of the gold which has been used for monetary purposes would have been required. According to Professor Fisher's own estimate (p. 310) only one-ninth of the gold actually coined would have been needed to secure for the United States in 1909 the price level of 1896; tho probably a somewhat larger proportion would have been required in other countries, where velocities and deposit currency have been less important price-making factors. At the price level of 1896, assuming no change in the market price of gold bullion, gold production during the last fifteen years would have been considerably greater than has actually been the case. Doubtless, there would not have been an increase, but rather a decrease, on account of the impossibility of marketing, for use in the arts, without a considerable fall in price, the large amount of gold which would not have been taken for monetary purposes under Professor Fisher's plan. It is not unlikely that the market price of gold bullion measured in gold coin would have fallen as much as fifty per cent. Whether a wide difference between the value of gold bullion and coin, if that difference should be fairly constant, would have serious consequence in the working of the plan, I shall not attempt to determine. It would seem to be certain, however, that a widely fluctuating price for gold, over short periods of time, would make it unworkable. Let us suppose that the price of gold becomes

at least as unstable as that of silver during recent years. Let us suppose also that, on account of the rise in prices during the previous year, an official price for gold bullion has been declared one per cent below its current market price. It might easily happen that the price of gold bullion would almost immediately fall below the official figure; in that case, the attempt at contraction of the purchasing medium would fail.

Such criticism as this, however, is not inconsistent with full appreciation of the high qualities of the book. Professor Fisher has made a noteworthy contribution to economic science. As he points out in the preface, it is strikingly unlike his books on the *Nature of Capital and Income* and the *Rate of Interest*, in that it is distinctly conservative in matters of theory. On this account its value can be appraised with more initial certainty. The prediction may be ventured that the book will become a classic in the literature of money, and that it will also prove a starting-point for fruitful investigation in the future.

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WILCOX'S MUNICIPAL FRANCHISES

THIS work¹ is described in a sub-title as a "description of the terms and conditions upon which private corporations enjoy special privileges in the streets of American cities." It is in fact much more than a mere description of municipal franchises as they exist. It is also a statement of what to the author seem to be the more important general principles that should govern the public in their relations with the so-called public utilities corporations. The author's ripe experience with municipal affairs and his present connection with the Public Service Commission of the First District of New York entitle him to be heard as an expert of exceptional weight, scrupulous tho he is to disclaim any authority to speak on behalf of the New York Commission.

Considered merely as a compilation of information relating to municipal franchises in the United States, the book is both comprehensive in scope and convenient in arrangement, and, so far as the reviewer can judge by an independent verification of certain portions of it, accurate in detail. Volume I deals with pipe and wire franchises: namely, electric light and power, telephone, telegraph, messenger and signal service, water, sewerage, central heating, refrigeration, pneumatic tube gas, artificial and natural, and petroleum pipe line franchises. Volume II deals with local transportation franchises: street, elevated, and interurban railway, subway, bridge, viaduct, tollroad, terminal, belt-line railroad, dock, market, ferry, and omnibus franchises. The accounts of the several classes of franchises begin in most cases with a brief sketch of the history and importance of the utility, and of the nature of the prob-

¹ Delos F. Wilcox, Ph.D., *Municipal Franchises, A Description of the Terms and Conditions upon which Private Corporations enjoy Special Privileges in the Streets of American Cities*. Complete in 2 vols. New York. The Engineering News Company, 1910, 1911. \$5.00 a volume.

lem created by its introduction into the city. Then follows a description of the typical franchises in operation in different cities of the country. The whole mass of information is rendered readily accessible by the indices. As a work of reference for municipal officers and the public generally the volumes are capital, and, with the addition of occasional supplements, must long remain the standard on the subject.

It is the author's opinions, however, rather than his facts, that chiefly concern us here. Dr. Wilcox indicates what are the necessary conditions to be imposed in the various classes of franchises, and what are the best types of franchises in force in different parts of the country. Chapter XXIII, on Elements of a Model Street Railway Franchise, contains the most important of his constructive suggestions. His discussion of the principles involved in the regulation of public utilities by means of taxation, public service commissions, and municipal ownership is for the most part reserved for the conclusion of the work. At the beginning, however, Dr. Wilcox states certain fundamental principles, already "established in the hard school of experience." These principles are (I, 130-131.):—

(1) That a public utility requiring special and permanent fixtures in the streets cannot be operated with a high degree of success from the standpoint of either its managers or the public except as a monopoly.

(2) That on this account a franchise grant, no matter to whom it is given or what provisions it may contain against consolidation, will either remain unused, or establish a monopoly, or add to the privileges of a monopoly already existing. There are many apparent exceptions in the early history of franchises, but as the years pass, every live franchise seeks the refuge of monopoly.

(3) That public utilities whose importance justifies the granting of special franchises in the streets render services of general interest to the people living adjacent to the streets traversed by such utilities.

(4) That the interests of the public demand continuous, uninterrupted service, extending over as wide an area as

practicable and constantly expanding as population increases and spreads out.

(5) That the absence of competition or its inadequacy as a force for regulating rates and service renders it necessary for the public authorities to maintain on behalf of the public a constant supervision over the exercise of a special franchise.

(6) That aside from the inherent necessity of public control for any particular utility, the demand upon the streets for general, varied, and increasing uses makes it imperative for the public authorities to maintain a continuing control of the public highways, undiminished by any continual or irrevocable special franchise.

(7) That public utilities, whether operated by the city or by private companies, should be so regulated as to render good service at cost, including in cost a sufficient amount for operating expenses, maintenance, depreciation, and a fair return upon the amount of capital actually invested.

. . . Under such conditions there would be no franchise values to tax except in unusually prosperous years.

The last of these propositions requires further discussion. What shall be the measure of capital actually invested? The author's answer to this question (II, 789) is that the capital value should be based upon actual cost of construction less depreciation through wear, neglect, inadequacy, or obsolescence. Frequently, however, the actual original cost of a utility can no longer be ascertained, and in practice the cost of reproduction is accordingly taken instead as a basis for appraisal. Dr. Wilcox's opinion is that in most cases, except where ruinous experiments or misfortunes in the development of the business have swallowed up large amounts of capital that have not been made good out of earnings, the cost of reproduction will be greater than the actual cost of the existing plant. If cost of reproduction be defined to cover the cost of building up the business as distinct from the physical plant (reproducing the income, as one expert phrases it), and also the appreciation of land values since the construction of physical plant, the result

will be, he believes, to render that mode of appraisal ineligible. In fact, the New York Court of Appeals has held that public service companies are entitled to a fair return upon the present value of their property, including land.¹ Dr. Wilcox regrets this decision (II, 796) and suggests that the companies should be charged with the annual increment of their land values as a part of income. "If this suggestion were carried out, it is obvious that the amount of revenue necessary to be derived from rates in order to give a fair return upon capital would be diminished by the amount of the annual increment in land values charged as income." The New York Public Service Commission for the Second District has ruled that in fixing the capital value of a public utility a reasonable allowance should be made for promoter's services in building up a going concern.² These and other considerations lead the author to the conclusion that "the more one looks into the subject, the more he is inclined to agree . . . that original cost is the right starting-point in determining capital value."

Dr. Wilcox distinguishes between capital value and capitalization. "The chief purpose of the regulation of capitalization is to protect investors, eliminate the speculative element in public utility securities, and keep the development and operation of the utilities under the control of persons whose pecuniary interest is to render successful service. To accomplish these purposes the market value of the securities should be kept as near as possible to the par value. . . . This can be accomplished in the first instance by insisting that behind every dollar of capitalization there shall be a dollar's worth of physical property. . . . It is hardly possible to accomplish the purposes for which public supervision of stock and bond issues is established

¹ *People ex rel. Jamaica Water Supply Company v. The State Board of Tax Commissioners*, 196 N. Y. 39 (1909).

² In re application Rochester, Corning, and Elmira Traction Company, N. Y. Publ. Serv. Comm. 2d Dist., Decisions at pp. 11, 12. The student who desires to pursue this topic should consult the case of *Hill et al. v. Antigo Water Company*, 3 Wisc. R.R. Comm. Repts. 623-777, and subsequent decisions of the Wisconsin Railroad (Public Utilities) Commission.

without frankly conferring upon the state commission full power to pass not only upon the kind of things to which capital may be devoted but upon the necessity and wisdom of the particular investments proposed. . . . One of the commission's gravest problems arises in connection with the reorganization of companies which were originally capitalized without adequate supervision. The part of wisdom, however, in such cases is to apply the knife with absolute firmness, so that the water will all be drained off and the new capitalization reduced to correspond with the present value of physical property." (II, 738-739.)

Dr. Wilcox subsequently (II, 784-785) discusses the Massachusetts anti-stockwatering policy under the acts of 1894 and 1908, and points out that it practically insures the old stockholders against any regulation of rates that would diminish the value of their stock. "The only safe way is to have stock sold at par and keep the market value down by regulation."¹

Chapter XLI on Supervision of Local Utilities by State Commissions has for its purpose "to show the natural limitations upon the scope of municipal franchise contracts growing out of the exercise by the state at large of its legitimate functions in the control of public utilities, rather than to give an exhaustive discussion of the organization and authority of state commissions." (II, 745.) Nor do Dr. Wilcox's volumes contain any discussion of the relations between the commissions and the courts. There is, however, a chapter on Constitutional and Statutory Limitations affecting Local Franchise Grants (chapter XXXIX). The following guarantees, in Dr. Wilcox's opinion, should be given a constitutional status in the several states (II, 705-706): —

(1) Every city to have the right to construct, acquire, and operate public utilities, if it chooses to do so.

¹ For further discussion of this point, see C. J. Bullock, *Control of the Capitalisation of Public Service Corporations in Massachusetts*, in *Papers and Discussions of the Twenty-First Annual Meeting of the American Economic Association*, December, 1908, pp. 384-414.

(2) No franchise to use the streets to be granted by the legislature by private or local bill.

(3) If a debt limit is established, bonds issued for self-sustaining public utilities not to be included within the limit.

(4) No term franchise to be granted for longer than thirty years.

(5) On all term franchises the optional referendum to be guaranteed on petition of five per cent of the electors.

(6) For the construction of street railways, the consent of the property owners or the favorable determination of commissioners after public inquiry to be required.

A special chapter (chapter XL) is devoted to the initiative and referendum in franchise matters. After reviewing the history of the various franchise contests in which the referendum has played a part, Dr. Wilcox concludes (II, 716-717) "that while the vesting of this power in the voters does not *necessarily* prevent the granting of improper franchises and may, possibly, even cause the defeat of meritorious measures in some cases, the general results are good." With regard to the initiative he is more guarded in his conclusions. (II, 720-721.)

Compensation for franchises, Dr. Wilcox considers to be based on a false theory or an unfortunate condition (chapter XLIV). "If the granting of franchises is to be defended at all, it must be defended on the assumption that they are granted as a convenient means of securing the performance of a necessary public function. In every case the obligations imposed should fully offset the value of the special privileges granted. . . . The question of the compensation for franchises then becomes merely a question of the justice and expediency of levying a special tax on the consumers of a particular utility for the relief of the other tax-payers." (II, 771-772.) He would differentiate between compensation and taxation of franchises, and declares that "the New York plan of assessing franchises as real estate is based on sound principles, but it fails to differentiate between land value represented in the intangible

right itself and improvement value represented in the fixtures." Dr. Wilcox severely scores the method of assessment pursued in New York, but confesses that "it is no easy task to assess accurately the value of intangible property." (II, 776-777.) In his opinion, "the taxing power may be used legitimately to bring companies having so-called perpetual or unlimited franchises to their knees. . . . Frankly, this means that the state is justified in attacking indirectly the improvident and corrupt franchise-contracts that would now be *ultra vires* if the public authorities had the thing to do over again. The ethics of this proposal is a matter of fierce dispute. . . . It is the view of the author, however, that the highest ethics requires this generation to recover and keep by whatever means are available the complete control of the public streets as an essential portion of sovereignty. . . . The ideal condition is where the franchises have no value to be taxed. This state of affairs can be induced, even where companies are firmly entrenched, by a judicious combination of police regulation and franchise taxation." (II, 779.)

The final chapter treats of municipal ownership. The author does not attempt to treat the subject exhaustively, altho plainly revealing his lack of sympathy with the opponents of that policy. For example, he takes up the common objection to municipal ownership founded on the corruption of American municipal politics. Two considerations, he declares, upset the possibility of acquiescence in such an objection. (II, 804.) First, municipal politics must be regenerated anyhow, whether we have municipal ownership or not, on account of the magnitude of the public interests already at stake in branches of municipal administration that cannot be abandoned. Secondly, the very corruption of which complaint is made, has been and still is "being caused in great measure by the parcelling out of public functions and the granting of special privileges in the streets to be used for private profit." But space is lacking to the reviewer, as it was also to Dr. Wilcox, to pursue the topic much further.

In 1904, Dr. Wilcox published his spirited little book, *The American City*. He there laid down what he called "a correct franchise policy, consistent with democracy, and practicable under existing conditions" (pp. 88-89). This preliminary statement of his position revealed a bold and aggressive thinker. The lapse of years and a vast amount of further work on the subject have brought little change in his underlying views. (Cf. *Municipal Franchises*, II, 808-809.) He remains a bold and aggressive thinker. On many controversial topics, he candidly invites opposition. On numerous matters of detail, he himself would be the last to claim that the final word had been said. (Preface to volume II, p. 6.) But the book gives a healthy stimulus to thought. It can be highly useful to the official or private citizen who in good faith is seeking for light upon the complex problem of which it treats.

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NOTES AND MEMORANDA

THE BRITISH REPORT UPON REAL WAGES IN AMERICA AND ENGLAND

This document¹ is the fifth of a series of reports upon working-class conditions in various countries. Its predecessors have dealt with the United Kingdom, Germany, France, and Belgium.² Since the general plan of inquiry has been substantially uniform in all cases, what has been said in these columns on the aims and methods of the British and German investigations need not be repeated concerning the American report.³

Twenty-eight towns, ranging from Boston and Duluth to Savannah and New Orleans, are included in the survey. A special article is devoted to each place in the body of the report, while the data collected uniformly in all the towns are summarized in the introduction. These data include the predominant rates of wages in the building, engineering, and printing trades; the predominant rents paid for working-class dwellings; the "prices most usually paid" by wage-earners for staple foods; and 7,616 family budgets. All of the statistics refer to February, 1909, except that wages in the building trades were taken for the following summer.

¹ *Cost of Living in American Towns. Report of an Enquiry by the Board of Trade into Working Class Rents, Housing, and Retail Prices, together with the Rates of Wages in certain occupations in the principal Industrial Towns of the United States of America. With an Introductory Memorandum and a Comparison of Conditions in the United States and the United Kingdom.* Cd. 5609. 6s. 1d. London, 1911. Folio, pp. xcii + 533.

² A convenient digest of the principal conclusions drawn may be found in the *Bulletin of the Bureau of Labor*, March, 1911, pp. 557-570. The same issue contains a more extended summary of the present report, at pp. 500-556.

³ *Quarterly Journal of Economics*, February, 1909, vol. xxiii, pp. 345-350.

Two sets of comparisons are worked out, the first between different American towns, the second between the United Kingdom and the United States. In the first set, index numbers are used, computed on the basis of New York rates represented by 100. The following table serves both to illustrate the methods employed and to present the leading results.

Index Numbers of Wages, Rents, Food prices, and the approximate relative level of "Real Wages" in American towns

	Number of Towns	Wages of skilled men.				Mean Rents	Food	Rents and Food combined	"Real wages"
		Building	Engineering	Printing	Average for wages				
New York	1	100	100	100	100	100	100	100	100
New England Towns . .	6	82	77	82	80	66	103	94	85
Other Eastern Towns . .	4	91	84	87	87	68	100	92	95
Central Towns	6	90	85	86	87	71	97	90	97
Middle Western Towns . .	5	103	91	90	95	79	95	91	104
Southern Towns	6	87	92	86	88	75	103	96	92

No competent reader will make the blunder of supposing that these figures adequately represent the actual differences in the economic status of wage-earners in the north and south, east and west. And the uncritical reader is reminded frequently by the text of the report that the data are limited in scope and not strictly uniform in character. But there is one technical defect of the final figures which is likely to escape attention. The statisticians of the Board of Trade persist in combining money wages, rents, and cost of food by manipulating the respective index numbers, altho Mr. J. M. Keynes pointed out in 1908 that a mere shifting of the basis in these computations may alter the results. "Real wages" in London work out higher than in Ireland if money wages, rents, and prices in London are taken as 100, but higher in Ireland than in London if the Irish rates are made the basis.¹ In the present

¹ See the review of the British report in this Journal, referred to above.

report extensive re-computations would be necessary to determine how far the ranking of different American towns in "real wages" is due to the arbitrary choice of New York rates as 100, and how far it is due to significant differences in the original data.

The international comparisons are made by the same method as the American comparisons, except that the manipulation of the statistics is not carried to the final stage of computing relative "real wages." The leading conclusions drawn are that the money wages of skilled men in the building, engineering, and printing trades average 130 per cent higher in America than in England; that hours of work average 4 per cent less; that rents average 107 per cent more; and that the English working man's budget costs 38 per cent more in America than at home, while the American's budget costs 25 per cent more at home than in England. Thus the skilled American wage-earner appears to be decidedly better off than his English cousin; for his 130 per cent excess in money wages much more than offsets his 52 per cent excess in expenditure upon food and rent combined.

While these precise figures must be taken with broad qualifications, the conclusion that the economic condition of the classes studied is better in America than in England is abundantly confirmed by other evidence. The American dietary is found to be more liberal and more varied than the English, and the proportion of income left after paying rent and food bills is larger in America. Indeed, even the lowest income class of American families spend relatively less of their income upon food and rent than the highest income class of British families.¹ Thus the American family has a wider margin of income for buying non-necessaries, enjoys a higher standard of living, and can save more money if so disposed.

In addition to these main results, the report incidentally presents other interesting conclusions regarding the labor

¹ The "Americans" of this comparison include, besides Americans proper, Irish, English, Scottish, Welsh, and Canadian families living in the United States.

situation in America and England. As a whole, America is said to have "an abnormally large proportion of unskilled and semi-skilled to skilled workers, . . . a fact that would affect appreciably any general 'weighted' comparison between the level of wages in the two countries." On the other hand, America has a smaller "proportion of deteriorated labor unfit for employment." Both of these differences are ascribed in large measure to the enormous European immigration into the United States. For the immigrants as a class are physically fit and morally enterprising; and employers have taken advantage of their presence in the labor market to develop a system of intense specialization which enables them to utilize a large number of untrained men in work which elsewhere would be performed mainly by skilled hands. Interesting also are the views that agricultural openings continue to exercise great influence upon the economic position of American wage-earners, that the mobility of labor is unusually great, that the general standard of housing is being perceptibly improved, and that there is a noteworthy uniformity of retail prices in different sections of the country.

All in all, the series to which this report belongs furnishes both the most extensive and the best accredited data to be had by the man bent on comparing the economic condition of wage-earners in different lands. To the student interested primarily in American conditions the separate articles on our chief industrial towns will prove a valuable source of detailed information.

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A CASE OF VOLUNTARY SUBSCRIPTIONS TOWARDS MUNICIPAL EXPENSES

WHILE large private gifts for specific public purposes are happily not uncommon in the United States, it is unusual for a municipal corporation to defray any appreciable portion of its ordinary expenses with the proceeds of a general public subscription. This, however, was the method adopted for the year 1911, by Everett, Washington, a city of about 25,000 inhabitants. The episode may be of interest to students of finance, as showing how unusual are the conditions under which a considerable public revenue can be secured through voluntary payments.

In November, 1910, the voters, by a majority of 278, decided to forbid the sale of alcoholic liquors within the city limits. The estimated loss of revenue from liquor licenses in 1911 was \$42,800; or a net loss, after deducting the state's share of 10 per cent, of \$38,520. In reality the loss was somewhat greater than this, for nine saloons, whose licenses expired between November 1, 1910, and January 1, 1911, failed to renew them; and large rebates had to be paid on licenses that covered only a part of the year 1911. The total loss to the city resulting from the adoption of the no-license policy was estimated at nearly \$60,000. While this loss could not properly be attributed wholly to the year 1911, it gave rise to a problem for that year to the officials in charge of the municipal finances.

The tax levy had been made in October, with no allowance for the possibility that the city might adopt a "dry" policy¹; and the budget called for an expenditure of \$135,933. The city's revenues had generally been somewhat less than

¹ According to a newspaper report, published since the above was written, the city of Ellensburg (population 4,209), anticipating a local option fight, has provided for a 5 mill increase in the tax levy for 1912 as compared with that for 1911, and for a reduction in expenditures.

its expenditures, and one of the problems for the year was the funding of the floating indebtedness. It would be out of place to consider at any length the reasons for this policy of deficit financing; but two important facts should be noted. In the first place the growth of the city had been very rapid. In 1900 the population was only 7,838; in 1910 it was 24,814. Another important fact, which bears not only on the reasons for the deficit, but on the difficulties arising from the loss of revenue from liquor licenses, was that by the city charter the general property tax rate was limited to eight mills on the dollar, and that taxation had for some time been imposed at this rate. Property in the state (Washington) is valued at about 45 per cent. It was not, of course, to be expected that, in a state having the antiquated general property tax for state as well as for local purposes, a single city should attempt to increase its revenue by increasing its valuation.

The loss of revenue from liquor licenses made necessary the most rigid efforts to reduce expenses. Sweeping reductions were made in the police and street departments, and the Seattle-Tacoma Power Company, from which the city had been buying electricity, was ordered to turn out the street lights. These measures naturally attracted some attention in cities and towns in other parts of the country where local prohibition was an issue, and furnished the "wet" interests an argument of which they were not slow to take advantage. As a matter of fact, the situation, tho serious, was not so bad as might appear at first glance. The abolition of the saloons was said to reduce the number of policemen needed, while yet the streets were no less safe than before. It is true that for a time the streets went largely uncleaned. The Seattle-Tacoma Power Company refused to turn off the street lights, saying that it had a valid contract, not to be given up, and that it had no desire to leave the city in darkness. The Company did not ask for cash payment, being willing to take any reasonable security; but when this was refused it continued, nevertheless, to supply light.

The loss of revenue was so great, however, that it seemed impossible that it could be met by any practicable measures of economy. Accordingly provision was made for a supplemental tax levy of five mills. It was thought that this might be permitted in spite of the charter limit, chiefly because of the great necessity for revenue, and it was argued that a statute authorizing the levy of taxes to raise the amounts necessary for certain purposes should take precedence over the charter. The supplemental levy, however, was held invalid by the Supreme Court.

The next important step was the submission to the City Council of a bill providing for an occupation tax. This measure was hastily prepared and contained a number of inequalities. A committee was appointed by the Everett Business Men's Association to confer with members of the City Council, and the proposed ordinance was greatly elaborated. It was still regarded, however, as far from satisfactory. The truth appears to be that the opposition was quite as much against the very idea of an occupation tax as against any particular measure. It is said that part of the opposition came from persons interested in the liquor business who wished the city to suffer; part came from the public service corporations and others who thought the amounts to be asked of them excessive; but it is probable that much was due to the belief of the average man that the main burden of taxation should fall upon property. It was feared that if the occupation tax were once established it would become permanent. Moreover it was felt that a business tax would be a bad advertisement for the city.

It was clear, however, that something had to be done; and the natural answer to all objectors was that they should submit to the occupation tax or propose something better. Meanwhile time was passing rapidly. The evening of Monday, April 3d, was set for the third reading of the ordinance; and there seemed to be little doubt of its final passage. On Friday, March 31st, a meeting of the directors of the Everett Business Men's Association took up the matter. The suggestion had already been made that the

necessary funds might be raised by popular subscription. At this meeting it was decided to put the plan into immediate effect.

The time was indeed short. If the occupation tax was to be defeated, it was necessary to give the Council, on Monday evening, some assurance that it would be unnecessary. The campaign was begun that afternoon. Various means of arousing popular enthusiasm were adopted. With the slogan "\$50,000 by Monday night" the daily papers gave their hearty support to the movement, and published inspiring accounts of what was proposed and of Everett's ability to accomplish it. Banners and placards were hastily supplied. Subscription blanks were printed, and cards were prepared showing what would be required of each tax-payer under the occupation tax in either its original or its amended form. Voluntary solicitors, armed with these cards and with the pledge forms at once began to canvass the town. Every one was asked to pledge a contribution; and it was suggested that the proper contribution for a laborer was a day's pay. Laborers, instead of signing the printed subscription forms, signed statements authorizing their employers to deduct their subscription from their wages.

As the success of the subscription plan could not be known in advance, cash contributions were not desired. It was provided that half of each subscription should be payable on May 1st and half on July 1st. A civic commission was appointed for the purpose of receiving the amounts subscribed when they became due.

By the time the proposed occupation tax came before the Council for final passage it was known that a considerable amount had been pledged; but it had been impossible to count and check all the returns. The best that the Association could do was to assure the Council that \$33,511.50 had been pledged and that the subscription list was still incomplete. On this showing the Council was persuaded to postpone consideration of the tax bill for one week.

It was soon seen that the amount subscribed, tho large,

was considerably below the \$50,000 which was felt to be necessary if the tax was to be avoided; hence efforts to raise the money were continued. At last, when the total amount subscribed was more than \$40,000, it was decided that the tax should not be adopted. The Mayor, however, warned the people that the revenue was short of the amount needed, and that it would be necessary to practise severe economy in the city's expenditures. Both the police and the street departments are still being carried on with reduced forces, and it is stated that no light or water bills will be paid by the city this year.

According to the latest accounts¹ the total subscribed and regarded as good amounts to very nearly \$45,000, representing about 3500 contributions. Of this amount more than \$40,000 has actually been collected. The cost of collection will have to be deducted, but the other expenses are quite small, most of the work involved being freely given. The largest subscription was that of the Everett Railway, Light, and Water Company, amounting to \$3000. The smallest contribution is twenty-five cents. Some of the subscriptions were made on condition that the whole amount be raised, but this condition is now regarded as satisfied. A number of pool-room proprietors subscribed on condition that a pending ordinance, ordering them to close on Sunday, be not passed. It is said that among the subscribers and solicitors were a number of saloon men who had been driven out of the business by the act which cut down the revenues of the city.

It seems clear that the method of raising funds by public subscription was adopted as a last resort for avoiding the occupation tax. To a great extent the subscriptions were based on the amounts that the subscribers would have had to pay had the tax been imposed, tho in some cases they were larger and in others smaller. The subscription plan was adopted largely because it was felt that the difficulty was merely a temporary one, due to the adoption of the no-license policy. Moreover, it was felt that it would be a

¹ July 27, 1911.

good advertisement for the city. It had the additional advantage that it could not be stopped by legal proceedings.

The voluntary subscription, it is obvious, was meant merely to supply a temporary need. The question naturally arises as to how revenues will be raised in the future. Apparently there is no strong sentiment in favor of a return to the "wet" policy; but even if there were, no vote could be taken on the subject till November, 1912. The natural tendency is to resort to an increase in the rate of the general property tax, securing the needed changes in the city charter. It would doubtless be better if the city were to take some forward step in taxation, but in falling back on the general property tax it is keeping in line with the rest of the state and indeed of the country. As long as the average business man continues to hold blindly to his belief in the present system, there is possibly some reason for the fear that an occupation tax, advertised as it doubtless would be by the "wet" interests elsewhere, would have some influence, for a time at least, in checking the growth of the city.

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THE WISCONSIN INCOME TAX

THE bill for taxing incomes which was passed by the Wisconsin Legislature in June of this year contains some novel and interesting features. Its most notable characteristics may be summarized as follows: —

(a) The table of rates for individuals differs widely from that provided for corporations, and the latter table embodies a principle seldom recognized in income taxation.

(b) The administration of the law is centralized in the state tax commission.

(c) The law practically abolishes the general property tax upon intangible personal property and adopts the income tax as a substitute.

The Wisconsin Income Tax Law was not secured as the result of any special agitation or propaganda. It was not advocated or even discussed to any great extent in the press or by public speakers until within the last year. In April, 1903, a joint resolution to amend the constitution so as to provide for a graduated tax on incomes was introduced in the Assembly, and was passed in both houses with but one dissenting vote. In 1904 the two dominant political parties strongly favored the constitutional amendment in their platforms, the democrats going so far as to say, "We pledge each and all of the democrats elected to the next legislature to support such amendment."

The amendment should have been published for three months prior to the November elections in 1904 and then ratified by the next legislature; but through an oversight the publication was not made, and the action of the previous legislature in passing the amendment was thus nullified. In 1905 the resolution was again introduced, tho in somewhat different form. Section 1, Article VIII, of the constitution was amended so as to read as follows:—

The rule of taxation shall be uniform and taxes shall be levied on such property as the legislature may prescribe. Taxes may also be imposed on incomes, privileges and occupations, which taxes may be graduated and progressive and reasonable exemptions may be provided.

The second sentence constituted the amendment, which was passed without much debate and by large majorities. At the legislative session of 1907 the amendment was agreed to, as required by the constitution, there being no dissenting votes in the Senate and only one in the house. When the question came before the people for ratification at the November election in 1908, the amendment was adopted by the decisive vote of 85,696 to 37,729.

The messages of Governor La Follette in 1905 and Governor Davidson in 1907 had strongly favored the amendment, and no doubt strengthened the popular sentiment in its favor. In his message to the legislature of 1909,

Governor Davidson treated the subject of the income tax at some length. After calling attention to the fact that the constitutional amendment had been ratified and that the matter had passed "from the realm of discussion to one calling for practical legislative consideration", he expressed himself as follows: —

Since the attempt to reach and tax so-called intangible personal property, which is often a source of large revenue to its owner, has proven a failure and we are fast approaching a condition where the real estate and visible personal property of the citizen shall bear the whole burden of taxation, some means must be adopted to tax that class of property not now reached under the property tax law.

This quotation fairly reflects the more intelligent popular sentiment in favor of the income tax law. The advocates of the law seemed to be actuated not so much by any wild enthusiasm for the income tax as by a desire to find some substitute for the iniquitous personal property tax. The surprising thing about this was that the people of the state should view with complacency the repeal of the tax on intangible personal property — a step which usually arouses a storm of indignant protest from those who look upon any such move as being in the interests of the wealthier classes. It must be remembered, however, that for ten years the permanent State Tax Commission had been carrying on a campaign of education, by means of their published reports and otherwise, which was calculated to bring out in bold relief the gross inequalities and general ineffectiveness of the tax on intangible personal property.

At the legislative session of 1909 a tentative bill for an income tax was prepared by a member of the State Tax Commission, and was introduced in the Assembly on the 25th of February. In view of the importance of the measure it was referred to a special joint committee consisting of four assemblymen and three senators, who were to hold public meetings during the legislative vacation of two years and report a perfected bill to the next legislature. In

accordance with this plan public meetings of the committee were held in different portions of the state, and criticism and discussion of the bill were invited.

Governor McGovern in his message to the legislature of 1911 quoted in full the report of the committee of the International Tax Conference, appointed to investigate the causes of the failure of the general property tax. He discussed the income tax at considerable length and proposed the substitution of a progressive income tax for the personal property tax, "the latter to be abolished at least so far as it applies to moneys, credits and intangible personal property, concerning the taxation of which it is very clear that the present law has completely broken down."

It would lead too far to attempt to follow the income tax bill through all the vicissitudes of the legislative session of 1911. A great number of amendments were offered, some of them designed to defeat the bill; and a strong opposition, representing important manufacturing and commercial interests, made itself felt. The faults and imperfections of the bill were pointed out, and the legislature felt impelled to call for expert assistance in getting the law into proper form. Chairman Nils P. Haugen and Professor Thomas S. Adams, of the State Tax Commission, and Professor Delos A. Kinsman (author of *The Income Tax in the Commonwealths of the United States*) did valuable service in getting the bill into workable shape and eliminating many of the more objectionable features. It was largely through their efforts that the exemption of personal property, which had not appeared in the bill as presented by the committee, was eventually made a part of it. The bill passed the Assembly June 23, 1911, by a vote of 54 to 25, and was concurred in by the Senate June 28 by a majority of one, the vote being 15 to 14.

The Wisconsin Income Tax Law comprises some seventeen pages of closely printed matter in pamphlet form. The first third of the law relates to the definition of income, deductions, exemptions, and rates; the remainder is devoted chiefly to the scheme of administration. Space will not

admit of anything more than a condensed summary of the principal features of the law.

Income. — Among the items included in income are the rental value of residence property occupied by the owner, and profits from the purchase and sale of property acquired within three years previous. It is thought by many that the latter clause may prove the opening wedge for the introduction of a full-fledged unearned increment tax.

Deductions. — The deductions allowed to *individuals* may be outlined briefly as follows: —

(a) Business expenses (but names and addresses of employees receiving salaries of more than \$700 must be reported);

(b) Losses not compensated by insurance;

(c) Dividends from firms and corporations which pay income tax;

(d) Interest on indebtedness (name and address of creditor to be given);

(e) Interest from exempt bonds;

(f) Salaries of United States officials;

(g) Pensions (United States);

(h) Taxes on the property from which income is derived;

(i) Inheritances, and

(j) Life insurance to amount of \$10,000.

Deductions corresponding to *a*, *b*, *c*, *e*, and *h* above are also allowed to corporations.

Exemptions. — No exemptions are allowed to firms or corporations, but there are exemptions of: —

\$800 for a single person;

\$1200 for husband and wife;

\$200 for each child under eighteen years;

\$200 for each additional dependent.

As originally drawn, the bill provided for exemptions of \$600 for a single person and \$800 for husband and wife; but the socialistic element in the legislature demanded much higher exemptions, and as its vote was needed in order to pass the bill, the sums of \$800 and \$1200 were finally agreed upon as a compromise. The amount of income tax

lost by this comparatively slight increase in the amount of exemption has been estimated at \$500,000. That the exemptions in Wisconsin are relatively high may be seen by comparison with European income tax laws. In forty continental states and countries which levy income taxes the average exemption at the foot of the scale approximates \$150. It is true that in England and her colonies the exemptions average as high as in Wisconsin, but the rates are largely proportional and much lower upon the average.

Rates. — The rates prescribed by the Wisconsin law for individuals are as follows: —

For the first	\$1,000	of taxable income (or part thereof)	1	%
Second	1,000	" " " " " "	1½	%
Third	1,000	" " " " " "	1½	%
Fourth	1,000	" " " " " "	1½	%
Fifth	1,000	" " " " " "	2	%
Sixth	1,000	" " " " " "	2½	%
Seventh	1,000	" " " " " "	3	%
Eighth	1,000	" " " " " "	3½	%
Ninth	1,000	" " " " " "	4	%
Tenth	1,000	" " " " " "	4½	%
Eleventh	1,000	" " " " " "	5	%
Twelfth	1,000	" " " " " "	5½	%
All over	12,000	" " " " " "	6	%

It will be seen that this table has the merit of advancing by easy steps up to six per cent. The \$1000 classes or grades of *income*, however, are large as compared with European countries. For example, Prussia has 17 grades before \$1000 of taxable income is reached, Austria 23, Sweden 29, and Saxe-Coburg-Gotha 31. The table may prove misleading at first glance. Each of the first twelve thousands is considered separately. While the rate prescribed for the fifth thousand is two per cent, the tax on \$5000 would be only \$75, or 1½%. In like manner the tax on \$12,000 would be, not 5½% of \$12,000, but the mean of 5½% and the preceding percentages, or about 2.95%. The effect of this plan is to give a sort of "diffused progression" to the rates. Compared with the average rates in forty foreign countries, the Wisconsin rates are lower up

to about \$12,000 of income, and higher from that point forward.

The table of rates for corporations differs materially from that for individuals, and, as has been intimated, embodies a somewhat novel principle. The rate increases up to six per cent by steps of one half of one per cent for every one per cent of increase in the percentage which the taxable income bears to the assessed valuation of the plant or property from which the income is derived. Thus if the taxable income equals one per cent or less of the assessed value of the property used and employed in the acquisition of such income, the rate of tax is one half of one per cent of such income. If the taxable income equals more than one, but does not exceed two per cent, of the assessed value of the property, etc., the rate is one per cent. If more than two but not exceeding three per cent, the rate is one and one half per cent. In this manner the rate progresses "until the rate of profits equals twelve per cent of such assessed value of the property used and employed in the acquisition of such income, when such rate shall continue as a proportional rate of six per cent of such taxable income."

The theory of this rather complicated and cumbersome method is that a corporation which requires a large plant in order to make a certain amount of net profit ought to be taxed at a lower rate than a corporation which can make an equal amount with a smaller investment. The idea may have been borrowed from a law passed in Georgia in 1863, which levied a graduated tax on all profits in excess of eight per cent of the capital stock; or, possibly, from a recent law in Sweden (passed October 28, 1910) which proportions the rate of tax on corporations to the percentage of profit obtained on the capital. The Wisconsin legislature evidently had some doubts as to the constitutionality of this method of taxing corporations; for the table of rates is followed by a provision that it shall be deemed a separable part of the law and, if declared invalid, the rates prescribed for individuals shall apply.

Administration. — This part of the law has been worked

out with great care, the committee realizing that the success or failure of the law would depend largely upon the manner in which it was administered. It was deemed especially important that the administration of the tax should be entirely removed from political or local influences. To carry out this idea, the following general plan was adopted.

The whole administrative machinery is centralized in the permanent state tax commission, a non-political body. This commission is given full power to make all necessary rules and regulations for the execution and enforcement of the law. It has appointed a "Supervisor of Income Tax," who is to be at the head of the administration subject to the general direction of the commission. The seventy-one counties of the state have been divided into forty income taxing districts as nearly equal as may be in wealth and population, and the commission will appoint an "Assessor of Incomes" for each district. These assessors will be selected after a rigid civil service examination and without regard to their political affiliations. Their appointments will be for three years. Their salaries will be fixed by the tax commission. They may be authorized to employ necessary deputies and assistants, and all salaries and expenses will be paid by the state. The only limitation upon the total amount which can be expended for such purposes is the requirement that it shall not exceed five cents for every thousand dollars of the state assessment for the preceding year. Upon this basis about \$147,000 could be expended in 1912; but it is hoped that the cost of administration can be kept down to about half this sum.

All corporations are to be assessed directly by the tax commission, while all individuals will be assessed by the assessors of incomes and their deputies. Corporations may be required to make returns whether they have any taxable income or not, and both corporations and individuals who fail to make returns, when required to do so, or make false returns, are subject to severe penalties. No official is permitted to divulge or make public the contents of any return.

Ample provisions are made for reassessment of incomes omitted within three years previous, and if the concealment of income was with false or fraudulent intent, the original rate is doubled for purposes of reassessment. A special county board of review, the members of which are appointed by the tax commission, will review the assessments of individuals, and an appeal is granted from its decision to the tax commission. Corporations may appeal from the assessment made by the tax commission to the circuit court of Dane County.

The income taxes are collected locally. The revenue derived from them is apportioned as follows: ten per cent to the state, twenty per cent to the county, and seventy per cent to the town, city, or village in which the tax was assessed. It is probable that the cost of collection will about equal the ten per cent which goes to the state, so that practically all the net proceeds of the tax are returned to the local taxing districts.

The personal property taxes which are abolished by the income tax law are those upon moneys, credits, stocks, bonds, personal ornaments, farm, orchard, and garden machinery and implements, etc. The annual amount of tax which these items represent is about \$1,500,000. The two chief items of personal property which remain subject to the property tax are farm animals and "merchants' and manufacturers' stock"; but some relief is afforded in respect to them by a provision of the law that personal property tax receipts may be used as cash in paying the income tax of the same year. This privilege, together with the low rates and high exemptions which the law provides, render it highly improbable that the yield of the tax, at least for the first year, will meet popular expectations.

The Wisconsin Income Tax Law marks a radical departure in methods of state taxation. It is a most novel and interesting fiscal experiment. If successful, it will not only demonstrate the possibilities of a state income tax as a substitute for the personal property tax, but will also show the greater economy and effectiveness of a centralized

administration. If the courts should hold that any portion of it is unconstitutional, the legislature may be relied upon to enact a new law with the offending clause omitted or changed. If it appears that the rates are too low to raise the revenue required, the law will be strengthened in this particular. It must be admitted that there are obvious defects in the law; but these will be no doubt remedied. The people are impatient of obstacles, and the tax reform movement has gathered such momentum and is backed by such a force of public sentiment that its onward progress cannot be stayed.

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RECENT TAX LEGISLATION IN IOWA

THE tax legislation of 1911 is the most important and comprehensive ever enacted on this subject by any one General Assembly in Iowa, with the possible exception of that of 1872, when the ad valorem system was applied to railroads. Aside from a number of minor acts with reference to tax exemptions and special tax levies for the destruction of noxious weeds, building of roads and bridges, drainage, and various other purposes, the following important revenue measures were passed: a law providing a flat rate of five mills in lieu of the old general property tax on moneys and credits; repeal of the tax ferret or tax inquisitor law; a careful revision of the collateral inheritance tax law; and, finally, the creation of a special tax commission to investigate the whole revenue system and make a report to the next General Assembly.

The law abolishing the general property tax and providing in lieu thereof a flat rate of five mills is the result of at least a quarter of a century of fiscal evolution. The taxation of mortgages as an interest in real estate, the total exemption of mortgages from taxation, repeal of the law granting a deduction of debts from the amount of moneys

and credits listed for taxation, the deduction of debts from personal property and even from real estate, an arbitrary regulation of the interest rate in order to prevent the shifting of taxes from the creditor to the debtor class, — these and other measures have been suggested since 1885. When the last General Assembly convened the time was ripe for a radical change. The total failure of the general property tax from the standpoint of administration, indicated by assessment at about one-eighth of actual value, had resulted in rates of taxation which, imposed upon moneys and credits listed at full value, amounted to a practical confiscation of property. Some form of relief was imperative. Added to these considerations the last Census revealed the fact that Iowa was the only state in the Union that had decreased in population during the last decade, a fact which was immediately seized upon to prove that the general property tax on moneys and credits had driven capital out of the state and thus had prevented the normal growth of manufactures and commerce.

The law as enacted places a flat rate of five mills on all moneys and credits excepting shares of stock of national, state, and savings banks, as well as loan and trust companies and moneyed capital as defined in section five thousand two hundred and nineteen (5,219) of the Revised Statutes of the United States. A deduction of just debts may be made from moneys and credits subject to the flat rate, but this provision does not apply to shares of stock of national, state, and savings banks, or loan and trust companies and moneyed capital in competition with banks.

The provision of the law relating to bank stock, which in reality constitutes a separate and distinct act, may be clearly understood from the following section: —

“For the purpose of placing the taxation of bank and loan and trust company stock and moneyed capital as nearly as possible upon a taxable value relatively equal to the taxable value at which other property is now actually assessed throughout the state as compared with the actual value thereof, it is hereby provided that state, savings, and

national bank stock, and loan and trust company stock and moneyed capital shall be assessed and taxed upon the taxable value of twenty per cent of the actual value thereof, determined as herein provided, which twenty per cent of the actual value shall be taken and considered as the taxable value and shall be taxed as other property in such taxing district."

The second fiscal measure of importance passed by the last General Assembly was the repeal of the so-called tax inquisitor law of 1900. By the provisions of this act it is made unlawful "for the council of any city or town, including cities under special charter and the commission plan, or for the board of supervisors of any county, to employ or contract with any person, corporation or firm to assist the proper officers in the discovery of property not listed or assessed for taxation as required by law."

It was necessary to make the law broad enough not only to repeal the legislation of 1900 but also to prevent the employment of tax inquisitors by any possible construction of the Code of 1897. Prior to 1900, the hiring of ferrets had been sanctioned by the courts and a fee of fifty per cent of the amount of tax collected had been held to be legal. In fact the so-called tax inquisitor law of 1900 was a limitation of powers already recognized, and not in any sense a grant of new power. The repealing act was passed early in the session as a precautionary measure in order to remove from the State House an undesirable lobby which might defeat the flat-rate system or any other desirable substitute for the general property tax on moneys and credits. With this accomplished the course of fiscal legislation was greatly simplified. The way was paved for what may prove to be a scientific reform of the Iowa revenue system.

In the third place the collateral inheritance tax law originally passed in 1896 was completely redrafted and substantially improved. But it should not be forgotten that this law is no better and no worse than the decentralized and largely perfunctory system of administration of which

it is a part. The thing which is now imperatively demanded is a permanent tax commission and county assessors, or at least county supervisors of assessment, in order to give this law, the same as the general property tax itself, what it most needs, — simplicity, directness, and administrative vitality. Numerous verbal changes, suggested for the most part by the State Treasury Department, have simplified the law, but the machinery of administration remains the same with all its imperfections.

The last measure, but from the standpoint of the future, let us hope, the most important revenue measure enacted by the last General Assembly, was that providing for a temporary tax commission of five members serving on a *per diem* basis and having an appropriation of ten thousand dollars. This commission is given power to make a thoro investigation of the tax system of Iowa and other states, draft the necessary bills, and make recommendations to the next General Assembly.

The powers granted the commission are thus clearly specified: "It shall be the duty of said commission to examine into tax assessment, tax levy and tax collection laws of the state of Iowa, and of other states, and use such means and make such investigations as it shall deem best to secure information, for the purpose of ascertaining whether the present laws of the state of Iowa regulating the assessment, levying and collection of taxes may not be improved, and to report its findings together with such recommendations as it may deem desirable, to the governor not later than October 1, 1912, together with bills intended to carry out its recommendations, and a detailed statement of the expenses of the commission as provided therein. The report and recommendations of the commission shall be transmitted by the governor to both branches of the general assembly of 1913, and copies of said report and recommendations shall be printed by the state printer and bound by the state binder in such quantity as the executive council may determine and a copy sent by the governor to each member of the general assembly by December 1, 1912."

As secretary of the special tax commission, the writer is permitted to state that the members are unanimous in favor of a permanent state tax commission, also of making the county rather than the township the real unit for purposes of assessment and equalization. Four members of the Iowa commission attended the National Tax Conference recently held at Richmond, Virginia, and were much impressed by the emphasis placed on efficient administration, in the deliberations of that body. If present plans materialize we expect to hold a State Tax Conference in the near future, thus affording an opportunity for public expression which will enable the tax commission to determine what measure of centralized administration will be practicable. There is every prospect that substantial progress in fiscal reform will be made by the next General Assembly.

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THE TAXATION OF INTANGIBLE PROPERTY IN MINNESOTA

IN their First Biennial Report, issued in 1908, the Minnesota Tax Commission recommended the taxation of money, credits, and several other classes of intangible property at a low flat rate of from three to four mills. In the spring of 1910 a bill embodying these views was passed by the lower branch of the state legislature, but was not acted upon by the senate. In their Second Biennial Report the Commission returned to the subject and repeated their former recommendation, going at some length into the history of the workings of the general property tax as applied to intangible personalty both in Minnesota and other states. The outcome was an act, approved on April 19th of the present year (1911), providing for the taxation by the state

of money and credits at a uniform rate of three mills upon the dollar.

In Minnesota as elsewhere the proportion of personalty to the total assessed valuation of all property has for many years been stationary or even declining, despite the undoubted rapid growth of personal property as compared with real estate. The Commission estimated that in 1910 not one-tenth of the intangible wealth of the state was contributing anything to the public revenue.¹ Since 1870 the assessed valuation of moneys, credits, and securities has been raised from 13% of all personal property to 29%; nevertheless, the inherent difficulty and injustice of attempting to tax these forms of intangible property at rates varying from 1½ to 6% — taking in many instances the whole income — have long demanded a radical change in methods of assessment and rate of levy.

The Minnesota Commission has been influenced by the report of the Massachusetts Commission on Taxation of 1908, and has reproduced much of the argument as well as a great part of the specific recommendations of the latter body. The present law as enacted is based largely upon the bill drafted by the Massachusetts Commission, many of its sections being followed almost without change of a word.

The principal features of the Minnesota law are to be found in the 1st, 2nd, 4th, 8th, 10th, and 13th sections. Money and credits are to be subjected to an annual tax of three mills, and are exempted from all other taxation. One-sixth of the revenue from this tax is to go to the state, a similar portion to the county, the remainder being apportioned equally to school and local needs. Self-assessment is to be the method of determining this kind of taxable property, official estimate being resorted to only in case of failure to make proper returns. A penalty of 50% is provided in case of such failure.

One important feature of the law is the provision for

¹ Second Biennial Report of the Minnesota Tax Commission, p. 180.

separate listing of intangible property, by which the tax-payer is enabled to return this class of property without returning all his goods and chattels. The Tax Commission is to prepare instructions for the local assessors, prepare blank lists and forms, and in fact have general supervision over methods of assessment. There is to be separate specification of money and of credits by the individual tax-payer, and separate listing upon permanent records, the returns and listing of this kind of property being kept "entirely distinct from that of other property."

Section 10 of the law requires county officers to prepare their reports in such a manner as to show under separate headings the aggregate amount of "moneys" and "credits" taxed in each district. This provision is obviously designed for purposes of statistical record and should within the next few years show some interesting results. Finally there is a section designed to check tax-dodging by removal of residence from one district to another, which provides that in case of such removal of domicile, the assessment shall, until new returns are made, be continued at the old valuation.

The first assessment of intangible property under the new law has just been completed.

For the previous ten years, the total assessment of money and credits in the State of Minnesota had stood pretty uniformly at about \$14,000,000. This figure, it should be observed, does not include mortgages, which are subject to a special registration tax. Under the new law, there were returned by the local authorities assessments of intangible property for 1911 amounting to \$104,000,000. In a number of districts the Tax Commission has ordered reassessments, returns of which have not yet been received in all cases; but the present indication is that the reassessment will raise the amount of intangible property to \$112,000,000. For the year 1912 the Commission now expects that these figures will be increased fully 50%, as both tax-payers and assessors become more familiar with the new law. It will be seen that the first results of the three-mill tax in Minnesota fully justified the expectation of the Tax Commission,

and are hardly less striking than those secured in Baltimore under the Maryland law of 1896. It may be expected that the success of the Minnesota experiment will encourage other states to adopt the plan of taxing intangible property at a moderate uniform rate.

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BEET SUGAR AND THE TARIFF

SUMMARY

Twenty-five years ago, little expectation of the growth of a beet-sugar industry, 189. — Great growth since 1890, 191. — Concentration in the far West, 193. — Climatic advantages of the arid region, 195. — Intensive cultivation required, 197. — A large labor supply needed; an agricultural proletariat? 199. — The sugar manufacturers active in procuring the labor, 202. — Little beet sugar in the Central West, 203. — The explanation is in the principle of comparative cost: corn is more profitable, 204. — The situation in Michigan, 207. — The beet-sugar manufactories, 208. — Can the argument for protection to young industries be advanced? 212.

OVER twenty years ago I published, in the columns of this Journal, a paper in which the tariff was considered in its bearing on certain industries, among them the culture of the sugar beet.¹ The general thesis of the paper was that those industries in which much hand labor is required are not adapted to the economic conditions of the United States; that those in which machinery is much used are carried on here

¹ "Some Aspects of the Tariff Question," Quarterly Journal of Economics, April, 1899. With some alterations, serving to bring the statistics to later date, the paper was reprinted in several editions of my Tariff History of the United States. In the very last edition of the Tariff History (1910) it was not reprinted, because fuller treatment of recent industrial changes had become necessary than I could then give. The aim of the present paper is to undertake, for the beet-sugar industry, the needed re-examination.

with a comparative advantage; and that the failure of some high duties to bring about the expected domestic production of the protected articles is explicable on the ground that industries requiring much hand labor are carried on here under a comparative disadvantage. This explanation was applied not only to manufactures, but to some phases of agriculture, and among the latter to beet-raising. Notwithstanding high duties on sugar, and a consequent high protection for any sugar-beet industry that might appear in this country, and notwithstanding considerable propaganda, there had been no cultivation of beets, and hence of course no sugar-making; while yet, on the Continent of Europe, the beet-sugar industry had long held its own against cane sugar without any protection whatever. The explanation was found in the fact that beets require intensive cultivation, and, moreover, intensive cultivation of a sort that calls for much hand labor in the fields. American agriculture is usually extensive. Moreover, agricultural machinery is developed and applied to a degree not known elsewhere. The farmers turn to those extensive and machine-using ways of cultivating the soil, especially for grain crops, which they find the more advantageous. Hence they do not raise flax or hemp for fibre, — here also intensive cultivation and hand labor are called for. For the same reasons they do not raise sugar beets, and it is not to be expected that they will.

The prediction thus made, or at least implied, has not been verified by the course of events during the last two decades. As is known to every one who has observed the course of the sugar trade, the beet-sugar industry has developed to an extraordinary extent. It began to grow almost immediately after the publication of my paper (1889). The beet-sugar product

quadrupled between 1890 and 1900, and more than quadrupled between 1900 and 1910, — a remarkable rate of growth. Far from remaining insignificant and quite negligible, its contribution to the country's sugar supply has become more and more important. In recent years, the beet-sugar output has surpassed that of Louisiana cane sugar, has equalled that from Hawaii, and has itself been surpassed by the supply from one source only, — Cuba.¹ In round numbers, over one billion pounds of beet sugar have been produced in each of the last three years. It would seem that the risks of prediction in economics could not be more dramatically illustrated, or the discomfiture of the prophet more complete.

None the less, I believe that the general reasoning which I applied in 1889 was sound; and not only was the reasoning sound, but its application to the particular case was justified. The unexpected development of the beet-sugar industry is one of those cases in which the apparent exception serves to illustrate and enforce general principles. It is the result of new agricultural and industrial conditions.

The beginnings of this growth of beet-sugar making fall in the period during which the tariff act of 1890 was in effect. Barring a slight amount from one or two California enterprises, no beet sugar at all had been produced before that date. The act of 1890, it will be remembered, admitted sugar free of duty, but gave domestic sugar makers a bounty of two

¹ The more important contributions to the total sugar supply of the country in 1909-10 (about 7,400 millions of pounds) were, in round numbers, —

from Cuba	3,500 m. lbs.
" U. S. Beet Sugar	1,025 " "
" Hawaii	1,110 " "
" U. S. Cane (Louisiana)	750 " "
" Porto Rico	570 " "

cents a pound. It would seem obvious that this put the domestic producers in no better position than before. The previous duty of two cents being abolished, their sugar fell in price by that sum; they simply got the bonus outright, instead of in the indirect form of an enhancement of price. Nevertheless the bounty of 1890 appears to have had a stimulating effect on the beet-sugar industry.¹ There may be a psychological influence from the direct payment; just as there is a vast difference in the effect on people's state of mind between collecting taxes directly and collecting them through levy on producers of commodities, or merchants, who recoup themselves by higher prices. Probably no less effective than the bounty at the start, and more effective as time went on, was the propaganda of the Department of Agriculture. That Department has preached beet sugar in season and out of season; has spread broadcast pamphlets dilating on the advantages of beet-growing for the farmer and giving minute directions on methods of cultivation; has maintained a special agent, who kept in touch with the manufacturers and farmers, and annually reported on the progress of the industry. The result was familiarity with the possibilities throughout the country, the removal of all obstacles from inertia and ignorance, and a rapid development in all regions where there was a promise of profits.

What, now, are the regions in which the profit has been such as to lead to great development? The

¹ "It is certain that it [the tariff act of 1890] gave new hope to both operators and growers, and between the time this act went into effect, in October, 1890, and the following June, some \$6,000,000 had been invested in beet-sugar factories in this country. . . . This small bounty, even for a brief time, was a wonderful stimulus to the struggling industry." G. W. Shaw, in Bulletin no. 149 (The California Sugar Industry) of the University of California, 1903, p. 17.

On the bounties which several states have given, see the note by Mr. P. T. Che-
rington, in this Journal, *infra* p. 381.

accompanying tabular statement shows what the situation has been since 1900,—the period during which the growth has been most marked and its geographical distribution most easily followed.

BEET SUGAR PRODUCT IN THE UNITED STATES
(IN MILLION POUNDS OF SUGAR)

	Total	California	Utah	Colorado	Michigan	Wisconsin	Other States
1899-00	163	85	19	2	33	..	24
1900-01	172	57	17	13	55	..	30
1901-02	365	140	28	45	105	6	41
1902-03	438	159	38	78	109	8	46
1903-04	466	136	46	89	128	11	56
1904-05	470	93	57	111	104	22	83
1905-06	635	144	48	209	122	27	85
1906-07	970 ¹	178	82	343	177	36	154
1907-08	852	180	93	245	171	37	126
1908-09	1,025	255	98	299	212	34	127
1909-10	1,120	280	77	206	278	36	243
1910-11	1,019	291	76	206	260	38	148

One fact is obvious on a cursory inspection of these figures. The beet-sugar industry is in the main massed in the far West,—in California, Utah, Colorado, and the adjacent region. The agricultural belt of the Central States has a very slender share. Only one state in this part of the country, Michigan, makes a considerable contribution to the supply. Wisconsin adds a very little. No other state in the central region has more than one beet-sugar factory. Barring Michigan, the production of beet sugar may be said to be confined to the Rocky Mountain and Pacific States. In 1909 the four states of California, Colorado, Utah, and Idaho contained 250,000 acres out of

¹ "This large increase was made possible by the unusually favorable weather conditions throughout the campaign."—Willett & Gray.

a total of 420,000 used for beet culture,¹ and produced nearly 700 million pounds of sugar out of a total of 1000 millions.

The explanation of this geographical concentration does not lie in any obstacles from climate or soil in other parts of the country. The beet flourishes over a very wide area. An instructive pamphlet issued by the Department of Agriculture shows the zone in which the sugar beet may be expected to "attain its highest perfection."² This zone or belt, two hundred miles wide, starts at the Hudson, and sweeps across the country to the Dakotas; turns southward through Colorado, New Mexico, and Arizona; and then, turning again, proceeds west and northwest through California, Utah, Idaho, and the Columbia valley. It includes a great part of the North Central region. Yet in this, the most important and productive agricultural region of the country, there is virtually no beet-growing or sugar-making, except, as just mentioned, in Michigan. The climatic and agricultural possibilities are not turned to account until the far West is reached.

Two circumstances are dwelt on by those well informed concerning the conditions favorable to beet-growing in this western region: the climate and the special advantages of irrigation.

The variety of the beet suitable for sugar-making flourishes in a cool climate; but it needs plenty of sun. "Abundance of sunshine is essential to the highest development of sugar in the beet. Other things being equal, it may be said that the richness of the beet will be proportional to the amount — not intensity — of

¹ I derive these figures from the Statistical Abstract for 1910.

² *The Sugar Beet*, by H. W. Wiley (edition of 1908); *Farmer's Bulletin* 53. The map is at page 5.

the sunshine.”¹ Evidently the cool region of cloudless sky in the arid West, including the high-lying parts of Arizona and New Mexico, meets this condition perfectly.

Again: “in respect to moisture, the sugar beet is peculiar in some respects. . . . There are three periods in the life history of the sugar beet which demand entirely different treatment so far as moisture is concerned: (1) the germinating or plantlet period; (2) the growing period; (3) the sugar-storing period.” During the first “the beet needs sufficient moisture and warmth to germinate and start it, but never an excess.” During the second, “the beet needs little if any moisture.” During the third, or sugar-storing period, “the plant should be given no water. The conditions desirable at this period are plenty of light and dry cool weather. If the beet is given moisture to any considerable extent, it will be at the expense of both sugar and purity.”²

It is clear that the irrigated regions of Colorado, Utah, Idaho, Montana, supply just the right combination of climate and moisture: cool temperature, abundant sunshine, moisture as needed, absence of moisture when harmful. Hence Colorado and Utah are described as the ideal beet-sugar states. “Considering everything, Utah is the ideal beet-sugar State. . . . Its natural conditions are quite similar to those of Colorado.”³ In Colorado 12 to 25 tons of beets to the acre are readily secured; even in the early days 15 to 17½ tons were got on the average; whereas

¹ Professor G. W. Shaw of the University of California, in the pamphlet on *Sugar Beets in the San Joaquin Valley*, p. 6; Bulletin no. 176, Agricultural Experiment Station, University of California.

² I quote again from Professor Shaw's instructive Bulletin, at pp. 16, 17.

³ Report on the Progress of the Beet Sugar Industry in the United States in 1909, p. 37, by the special agent of the Department of Agriculture, C. F. Saylor.

in European countries not only is the tonnage per acre less, but the sugar content smaller.¹ Some of the districts of California have the required combination of soil and moisture without irrigation, or with little irrigation. California has some further advantages. Its equable climate enables the beet-sugar "campaign" to be spread over a longer period than elsewhere; and its beets have a very high sugar content.²

Contrast these conditions with those of a state like Michigan, where the annual precipitation is considerable, and where the distribution of the precipitation depends on the accidents of the season. In 1909, for example, the agent of the Department of Agriculture reported that "On the whole the weather conditions in the state during the past year were rather unfavorable. The spring was cold, wet, and backward, but more favorable weather prevailed during the growing season, though there was considerable tendency to drought. The weather was especially favorable for harvesting beets. This is a critical period. Dry weather lessens the work and improves the beets."³ In 1901, 1902, and 1903 there were bad seasons in Michigan: "there was considerably more rain than was desirable, necessitating expensive work in weeding and cultivation. The cold wet rains of the fall delayed the harvesting and belated the work of the sugar factories."⁴ In 1904, on the other

¹ Report on Progress . . . 1904, p. 46.

² Ibid., p. 23. I take some satisfaction in recalling that, when discussing in 1889 the beet-sugar situation, I referred to the unusual possibilities of such regions as California. "It is not impossible," I wrote then, "that the extraordinary combination of soil and climate in California may bring about a development which could not be attained in other parts of the country." *Quarterly Journal of Economics*, vol. iii, p. 266, note. A combination of favorable conditions no less extraordinary exists in the arid regions, whose possibilities under irrigation were dreamed of by no one a quarter of a century ago.

³ Report on Progress of the Beet Sugar Industry in 1909, p. 32.

⁴ Ibid., for 1903, p. 139.

hand, the season happened to be favorable.¹ Evidently the Michigan farmer is at a disadvantage because of the uncertainties of the weather. The farmer of the irrigated arid region can always count on abundant sunshine, and can apply moisture exactly as needed.

For all these reasons "Michigan farmers cannot grow as high a tonnage as they do in the Western States under irrigation; their beets are not naturally of as high a quality and probably they never will be."² The same holds of other parts of the North Central region. "In Iowa, the beets have not been as high in quality as those grown in California, Colorado, or Idaho."³

Turn now to another aspect of the problem, — the kind of cultivation required for beet-raising. The situation is the same as I described it in 1889. Intensive culture and much hand labor are necessary. Professor Shaw, in his valuable reports on the industry in California, has more than once used the phrase: "The growing of beets is not agriculture, but horticulture." All the manuals and pamphlets insist on the need of elaborate preparation, minute care, much labor directly in the fields. The planting of the seed does indeed take place by drills, the plants coming up in continuous rows. But after this first operation, painstaking manual labor is called for. When the young shoots come up, they need first to be blocked, then thinned. "Blocking" means that all the beets in the rows are cut out by a hoe, except small bunches about ten inches apart. These bunches are then "thinned"; every plant is pulled out by hand except one, the largest and healthiest. "Great care should

¹ *Ibid.*, for 1904, p. 113.

² *Ibid.*, for 1903, p. 140.

³ *Ibid.*, for 1904, p. 57.

be exercised in this work, and by careful selection all the inferior plants should be removed. . . . When thinning, it is a good plan to give the ground a thoro hand hoeing."¹ Throughout the growing period the beets must be cultivated, partly with a horse cultivator, partly with the hand hoe. "The cultivator and the hoe should be used alternately until the beets are too large for horse cultivation without injuring them. Hand laborers should continue to go over the beet field, pulling the weeds and grass that may have persisted."²

Essentially the same situation appears when harvesting is reached. The beets may be first loosened by a plow and by a lifter; but each individual beet must be pulled out by hand. Then they are knocked together gently to remove the adhering dirt. Finally, they are "topped"; that is, the neck and leaves are cut off with a large knife. "The removal of the tops of the beets is a tedious process, which in Europe is performed by women and children. . . . Constant supervision is necessary in this work."³

No machinery has been devised that serves to dispense with the large amount of hand labor called for. "Several attempts have been made to construct a mechanical device by which the beets can be topped, thus saving a large expense, and perhaps a successful device of this kind may some day be invented. So far as is known at the present time, however, this process has not been successfully accomplished by machinery, and the topping must still be done by

¹ *The Sugar Beet*, p. 20.

² *Report on Progress . . . 1909*, p. 19. The same story appears in all the accounts of beet-sugar growing. See for example the statements of Mr. Hathaway, of the Michigan Beet-Sugar Company, before the Committee on Ways and Means in 1909; *Tariff Hearings of 1909*, p. 3311.

³ *The Sugar Beet*, pp. 21, 22.

hand.¹ "Inventive ingenuity in Europe and especially in America," said the Special Agent of the Department of Agriculture in 1906, "has been directed to planning a harvester which will do away, as far as possible, with this expensive hand work. . . . It cannot be said that any of these newly devised implements works successfully in all soils."² In 1909 he reported that "these machines are not now in general use, but their use is increasing"; and he still laid stress on the need of elaborate hand cultivation.³

It follows that the successful growing of the sugar beet calls for a large amount of monotonous unskilled labor; no small part of it, labor that can be done by women and children, and that tempts to their utilization. In the documents of the Department of Agriculture there is constant reference to the peculiar labor problem confronting the farmer who sets out to raise sugar beets. "As a rule the farmer, if he grows beets to any extent, does not have on his farm sufficient labor to take care of the work of thinning, bunching, hoeing, and harvesting the sugar beets."⁴ Not only does the typical American farm and farm community lack the number of laborers required; the labor itself is of a kind distasteful to our farmers. "Thinning and weeding by hand while on one's knees is not a work or posture agreeable to the average American farmer. Bending over the rows and crawling along them on one's hands and knees all day long are things that the contracting farmer is sure to object to as drudgery. . . . Our farmers ride on their stirring plows, cultivators, and many implements."⁵ As was

¹ *The Sugar Beet*, p. 22 (1908).

² *Report on Progress*. . . 1906, p. 38.

³ *Report on Progress*. . . 1909, pp. 14, 19.

⁴ *Report on Progress*. . . 1901, p. 19.

⁵ *Ibid.*, 1906, p. 24. A correspondent writes me from California: "Otherwise than in the performance of such labor as can be done with teams, very few Americans undertake hand labor in the beet fields."

remarked by one of the witnesses before the Ways and Means Committee, at a tariff hearing: "the thinning and the topping of the beets it is pretty hard to get our American fellows to do, and they prefer to hire the labor and pay for it."¹ The Kansas State Board of Agriculture informs its constituents: "if the American farmer is to realize all possibilities in raising sugar-beets he will do so through his ability as a superintendent and not as a drudge."²

The manner in which this need of extra labor has been met is instructive not only as regards the beet-sugar situation itself, but also as regards the general trend of industry in the United States during the last generation.

Almost everywhere in the beet-sugar districts we find laborers who are employed or contracted for in gangs; an inferior class utilized and perhaps exploited by a superior class. The agricultural laborers in the beet fields are usually a very different set from the farmers. On the Pacific coast they are Chinese or Mexicans. Except in Southern California, where the Mexicans are near at hand, most of the work is done by Japanese under contract; there being usually a head contractor, a sort of sweater, who undertakes to furnish the men. In very recent years Hindoos (brought down from British Columbia) also have appeared in the beet fields of California. In Colorado "immigrants from Old Mexico compete with New Mexicans (*i. e.*, born in New Mexico), Russians, and Japanese."³ Indians from the reservation have been

¹ Tariff Hearings of 1909, p. 3418. "Americans will not do that work; not 1 in 50," said a Colorado beet grower, testifying (in 1911) before the House Committee to investigate the American Sugar Refining Co.; Hearings, p. 3192.

² Report of Kansas State Board of Agriculture for Sept., 1906 (a special report on sugar beets), p. 20.

³ V. Clark, in Bulletin Department of Labor, Sept. 1908, p. 483.

employed in Colorado; and boys have been sent out under supervisors from the Juvenile Court of Denver. At one time, convict labor was used in Nebraska.

In some parts of Colorado, in Montana, and at the beet fields of the single factory in Kansas, Russian Germans are employed. These curious and interesting people are Germans who were imported into Russia by the Empress Katherine; they persistently maintained their race and language and religion; in recent years they have been driven from Russia by persecution. They now center about Lincoln, Nebraska, and are shipped under contract to the beet fields, where they are assiduous and much-prized workers. They are much more welcome than the fickle Indians and Mexicans; more welcome even than the Japanese, who are quick and capable, but often break their contracts. The German Russians camp in whole families at the beet region for the summer; men, women, and children toil in the fields. In Michigan, the main labor supply comes from the Polish and Bohemian population of Cleveland, Buffalo, Pittsburgh. The circulars issued by the Department of Agriculture and by the state boards and bureaus repeatedly call the attention of the beet farmers to the possibility of employing cheap immigrants. The troublesome labor problems, it is said, need not cause worry: here is a large supply of just the persons wanted. "Living in cities there is a class of foreigners — Germans, French, Russians, Hollanders, Austrians, Bohemians — who have had more or less experience in beet-growing in their native countries. . . . Every spring sees large colonies of this class of workmen moving out from our cities into the beet fields."¹

¹ Report on Progress . . . 1904, p. 37. Compare the Report of the Kansas State Board of Agriculture, cited above, p. 19. A correspondent writes me from Bay City,

The sugar manufacturers, who buy the beets and make the sugar in their factories, play a large part in bringing this labor to the fields. Indeed, they play a large part in every phase of the industry, — on its agricultural side as well as on its manufacturing side. They supply seed; give the farmers elaborate directions on methods of cultivation; employ supervisors to visit and inspect the farms, and to spur the farmers to the needed minute care; of necessity they test the beets at the factory, and pay according to sugar content; and they often undertake to provide the labor. Sometimes the factories contract to attend to the field labor themselves, receiving from the farmers a specified price, — so much for bunching and thinning, so much for each hoeing, so much for topping. The farmers then have nothing to do but supply "reasonable" living accommodations.¹ More often farmers, not thus provided for, secure their laborers through contractors, at a fixed price of so much (varying from \$15 to \$20) per acre for all the work; these middlemen being hunted up or selected for the farmers by the factory managers. Such "sweaters" make a profit from their sub-contract with the field hands; the system being open to the possibilities of over-reaching which are too familiar under such arrangements.

All this is part of the transformation which has been wrought in so many parts of our social and eco-

Michigan: "We secure the laborers in such centers as Cleveland, Detroit, Chicago, and Pittsburgh, and these laborers when brought to Michigan make a contract with the farmer to take care of his beets at a certain sum per acre, averaging about \$30 per acre. . . . It is safe to say that about two-thirds of the beets are taken care of by outside labor. In our own case [a large sugar company] we probably brought in about 1800 laborers." On smaller beet tracts in Michigan, the farmers and their families do the work themselves, employing no "outside" labor.

¹ The form of contract used by the Great Western Sugar Co. of Colorado is printed in the Hearings of the Committee to investigate the American Sugar Refining Co. (1911), p. 3186.

nomie structure during the last quarter of a century by the vast inflow of immigrants. Manufactures have been most obviously affected by it. Our textile trades, the iron and steel industry, the glass manufacture, have in greater or less degree adjusted their methods and machinery to the new labor supply. The tariff situation has been modified: not a few industries can maintain themselves without tariff aid, or with little aid, which formerly could allege more plausibly the need of high duties. Agriculture also is feeling the influence of the new conditions. Laborers from the congested foreign districts of the cities — Italians, Bohemians, "Huns," "Polacks," Russians — make their way to the market gardens surrounding the cities, to vegetable districts such as that of the Chesapeake peninsula, to the cranberry fields of New Jersey, and do the hard work for the shrewd Yankee farmers. Possibly these field hands are on the way to the acquisition of land through their savings. Such persons as the Russian Germans who work in the beet fields are not likely to remain long in their present semi-servile state. These are doubtless progressing toward land ownership. Possibly the same upward movement will be achieved by many members of the other races. But certainly for the time being the conditions are socially and industrially unwelcome. They are not dissimilar to those of the *Sachsengänger*, of ill repute in eastern Germany. They are very different from the conditions which we think of as typical of agriculture in the United States. There is an agricultural proletariat in the beet fields.

As yet, however, the main agricultural region of the United States, — the great Central region in which are the wheat and corn belts, — has been little

affected. Here we still find extensive cultivation, agricultural machinery, the one-family farm. It is true that during the harvest season there is a heavy demand for agricultural laborers, and that this is satisfied by laborers who may be said to constitute an agricultural proletariat. It is true also that the stage of pioneer farming has been passed or is rapidly being passed, that rotation is becoming more systematic and skilful, the land more valuable, cultivation more intensive. Nevertheless this remains the region of the one-family farm. The farmers "ride on their stirring-plows and cultivators" and in this way are able to do most of the work on their lands for themselves.

Throughout the corn belt there is no sugar-beet industry of any moment; yet the corn belt is largely the same as the potential beet-sugar zone. The explanation seems to me clear: it pays better to raise corn. In the language of the economists, there is a comparative advantage in corn-growing. This grain is peculiarly adapted to extensive agriculture. It also lends itself readily to the use of machinery; corn can be "cultivated" between the rows by horse power. It is a substitute for root crops, and can be rotated steadily with small-grain crops.¹ It is a direct competitor with the sugar beet for cattle fattening. The advocates of beet-raising always lay stress on the value of the beet-pulp, the residue at the factory after the juice has been extracted, for cattle feeding. But corn is at least equally valuable for the purpose

¹ See the excellent analysis by Professor H. C. Taylor, in *Annals of the American Academy of Polit. and Soc. Sci.*, vol. xxii, p. 179 (1903). Cf. the same writer's *Agricultural Economics*, p. 65 *seq.*, and Carver's *Rural Economics*, p. 100. Professor Taylor, in a recent paper (*The Place of Economics in Agricultural Education and Research*, p. 96; publ. by University of Wisconsin, 1911) states more explicitly his conclusion that "it is hardly probable that the sugar beet will ever be able to compete with corn on even terms in the corn belt of the United States."

and the typical American farmer raises it by agricultural methods which he finds both profitable and congenial. One man can grow forty acres of corn. He can plant only twenty acres of beets; and these he cannot possibly thin and top.¹ In Iowa "the farmers are progressive, successful, and satisfied. In fact, this has been the main obstacle to installing the sugar industry there. The farmers have not shown a disposition to grow the beets. When the farmers are advised that beet culture is accompanied with considerable hard work, factory propositions usually succumb to the inevitable. The farming class of the state is accustomed to the use of labor-saving implements in the fields." And yet Iowa "has the quality of soil and the climatic conditions necessary for producing a large tonnage of beets."²

It is true that Michigan, and Wisconsin also, are outside the corn belt. Except along the southern edge of these states, the grain does not ordinarily mature. But corn still remains a formidable competitor of the sugar beet, in its use through ensilage. It is cut green, stored in the silos, and so is available for cattle feeding. It continues to be available in rotation with other grain and with grass. During the last two decades Wisconsin has become a great dairy state. "The pasture, hay, and corn lands of the state form the basis of the live-stock industry."³ Here there is a profitable system of agriculture in which there is no need of the minute attention, the elaborate

¹ Report on Progress . . . 1904, p. 56.

² See the testimony of a sugar-beet grower from Colorado, in Tariff Hearings of 1900, p. 3417.

³ Progress of the Dairy Industry in Wisconsin, by H. C. Taylor and C. E. Lee, p. 7; Bulletin no. 210 of the Agricultural Experiment Station, University of Wisconsin (1911).

cultivation, the concentrated labor, which are required for the sugar beet.¹

To sum up: beet-growing calls for highly intensive cultivation. As I stated in 1889, it is not adapted to the typical agricultural conditions of the United States. On the irrigated lands, where its development has been so surprising, the conditions are not typical. There is likely to be intensive cultivation in any case. The land is comparatively expensive, — counting the cost of irrigation as part of the cost of the land. Hence the land must be called on for a larger gross product, through garden crops and the like. Add the special climatic advantages of the arid region, and it is easy to see why beet culture is found advantageous. But through the greater part of the theoretical beet-sugar belt, and especially in the corn belt, more extensive methods of using the soil pay better. Beet-growing finds no place in the region of the one-family farm.

No doubt it is true that agriculture in the North Central District and to some degree throughout the United States, is in a stage of transition. Corn and the small grains, tho they remain the fundamental crops, are being supplemented by root crops, and there is more and more resort to dairying. How far this transition will be carried must depend on the pressure of demand for agricultural produce in consequence of the growth of population, and on the social forces which influence land ownership and land tenure. The conditions of labor supply are also important; and these may influence the development of agriculture as profoundly as they have that of

¹ My colleague, Professor T. N. Carver, to whom I showed the proofs of this article, appended the following comment: "Corn silage will furnish fifty per cent more feed, acre per acre, than any root crop. Moreover it costs half as much, or less than half, to grow an acre of silage and feed it as it does to grow an acre of any root crop and feed it. The only chance for beet-root cake is to sell it as a by-product, the balance being covered by the profits on sugar."

manufactures. But as yet it is only under exceptional circumstances that the American farmer will find it profitable to carry on such intensive cultivation as beet-growing requires.

The relation of the beet-sugar industry to the tariff presents, on its agricultural side, one of the many cases of differing costs. If the formula is to be applied which is now so much in vogue — protect in proportion to the higher cost of production in the United States — the legislator must face the dilemma that the protection which suffices for one set of producers *more* than suffices for others, and in that sense is excessive. The situation, of course, is one familiar in the extractive industries, and in all industries in which there are permanent causes of variation in cost. It costs more to produce beets in Michigan and Wisconsin than it does in California and Colorado. The beet-sugar producers of the West can turn out sugar profitably at a price of somewhere near three cents per pound. Those of Michigan find it hard to extract a profit at four cents a pound.¹ The beet-sugar industry of the far West, under the present tariff-raised price of sugar, is steadily reaching eastward with its product, and has become a formidable competitor both of the Michigan industry and of the imported and domestic cane sugar.

¹ See Tariff Hearings of 1909, pp. 3360-3361, and 3325, 3364.

The sugar manufacturer from Michigan who testified before the Ways and Means Committee in 1909 averred insistently that they had been able to declare slender dividends or none at all. The following plaintive letter from a Michigan farmer appears in the Hearings (p. 3500): "Honorable sir: I was one of the first to raise beets in this neighborhood, and each year I have been trying to make up for what I lost the year before. This year I raised in round numbers 13½ acres, on which I made a profit of minus \$2. The crop brought me \$604, and it cost me \$506, and still I am only 30 miles from the Blissfield factory, where they are marketed." It need not be said that an isolated statement like this has little probative force; what was the method of reckoning "cost"? Yet it is in accord with the general trend of testimony from Michigan.

The Michigan sugar makers hence are uneasy about the future; and they plead strenuously for consideration to their vested interests. It must be admitted that the plea is in one regard of exceptional force. Not only has the general policy of protection been long maintained by Congress, and investment in accord with it encouraged; but, as one of the witnesses before the Ways and Means Committee said in 1909, "the investment which our Company made in the sugar business was made on the invitation and urgent advice of the United States Government through its Department of Agriculture."¹ It is a serious responsibility which the Department has thus taken on itself. Its zeal too often has been indiscriminate. Its propaganda has rested, in part at least, on a crudely mercantilist principle: on the assumption that it is desirable to produce within our own borders anything and everything that can possibly be produced there, and that a tariff policy based on this assumption will be maintained indefinitely.

A question in some respects different is presented by the beet-sugar factory, which buys the beets from the farmers and makes the sugar. Here there is what the business world calls "a straight manufacturing proposition." Whether the manufacturing of sugar can be done to advantage in the United States depends on the same conditions as in other manufactures. It is much affected by the opportunities for using machinery and for the exercise of American inventive and engineering capacity in improving machinery. Such evidence as I can get indicates that, so far as this branch of the industry is concerned, the conditions are not unfavorable to its successful

¹ Mr. C. N. Smith, in the *Tariff Hearings of 1909*, p. 3317.

prosecution, with little need, if any, of tariff support. When the first factories were built in California the machinery was imported from Germany. "The Yankee inventive genius of machinery men at once took hold of the matter, making so valuable improvements that both the above mentioned factories [at Watsonville and at Chino] were shortly refitted with machines of American make, and every factory in this country in the last few years has purchased American machines."¹ So in the Department of Agriculture's pamphlet on the industry, it is stated that "in the early days of the beet-sugar industry in this country, Europe was called on to furnish all machinery. Now very little is imported, and in fact some of the foreign factories are using American-made machinery."² The domestic making of machinery, the breaking loose from European tutelage, the introduction of technical improvements, — these are significant indications of the successful adaptation of a new industry to American conditions and of ability to meet foreign competition unaided. It should be borne in mind, moreover, that the factory managers take an active part in directing and supervising the agricultural operations. In this regard there seems to be abundant and successful enterprise. The managers of the beet-sugar factories have been chiefly instrumental in bringing the indispensable labor supply to the farms. Through traction engines and the like, they have grappled with the difficulties of transporting the beets from the field to the factory. They have selected the seeds, and have assiduously spread information among the farmers on the best ways of getting a large tonnage

¹ Shaw, *The California Sugar Industry* (1903), p. 17.

² *The Sugar Beet* (1908), p. 38. Similar statements have been made to me in conversation by persons engaged in beet-sugar making.

of beets and a large content of sugar. In the far West especially, all this activity has been carried on with industrial and pecuniary success. Neither in the factory itself nor in the problems of organization arising from the interdependence of farm and factory has there been a lack of skill or energy.¹

It is, I think, another sign of successful adaptation to new conditions that the American beet-sugar factory carries its operation a stage farther than do the factories of Europe. The latter usually produce raw sugar only, which is sent to the refineries for the last stage of preparation; precisely as our cane sugar is imported in the "raw" form, and goes through the refineries before being marketed for consumption. The American beet-sugar factories, on the other hand, make refined (granulated) sugar, which is sold at once to the grocers. In Europe the greater geographical concentration of beet-growing and sugar-making, and the consequent ease of transportation to refineries near by, probably account for the practice there prevailing. The different American practice doubtless took its start because refining was controlled, during the earlier years of beet sugar, by the Sugar Trust and its affiliated concerns; but it has persisted because it fits the geographical and industrial conditions of the industry. Another reason is that in Continental Europe beet farming and sugar making constitute commonly one integrated enterprise, and are associated either with estate farming on a large scale or with direct coöperation between large-scale agriculturists and the factory owners. A different sort of

¹ There is bickering, inevitably, between the farmers who grow the beets and the sugar manufacturers; the farmers maintaining that the manufacturers beat down the growers and pocket the bulk of the profits for themselves. Very likely this is the case; but the growers get quite enough to make the beet culture worth while, as is proved by its rapid extension. See Hearings on the American Sugar Refining Co. (1911), pp. 3313 and *passim*.

coöperation between farm and factory was necessary under our conditions of land ownership, and this has been worked out successfully by the American manufacturers. Neither in the technical aspects of the manufacturing industry, nor in its appropriate organization, is there indication of any disadvantages in the United States.

On the agricultural side — to turn again to this, the real seat of difficulty — it is constantly said that sugar beet-growing has many and varied advantages. The high cultivation, it is said, improves the quality of the land; the general fertility of the land is enhanced; a better rotation is established; the by-products, especially the beet-cake, are valuable for cattle feeding, and this in turn provides manure and maintains fertility; the factory makes a market for local coal and lime; it "stimulates banking and almost all kinds of mercantile business." These advantages have been dwelt on almost *ad nauseam* in the publications of the Department of Agriculture.¹ So far as the tariff question is concerned, they prove too much. If beet culture is so very advantageous for the farmer, why does he need a bonus or protective tariff to be induced to engage in it? The American farmer is not an ignorant or stolid person; he has access to a multitude of educational and propagandist agencies, and is even beset by them; he is a shrewd observer, a ready innovator. The agricultural methods of the central region have been revolutionized during the past generation, with the transition from pioneer farming to conserving agriculture. If beet culture were really so advantageous a part of the general change, we might expect its speedy and widespread

¹ See for instance Report on Progress . . . 1901, pp. 132 seq.

adoption. I suspect the advocates of beet-growing have been making the same mistake as those English travellers who in the early part of the nineteenth century damned American agriculture as hopelessly inefficient. They suppose that the highest cultivation is necessarily the best cultivation. The agricultural expert is apt to be intent on the gross product, to search for the largest yield per acre. But the best agriculture is that which secures the largest yield not per unit of area but per unit of labor. Minute cultivation means a large product per acre but by no means necessarily a large product per man.

None the less, it may be argued, with show of reason, that the introduction of methods of cultivation so radically novel as those of beet-growing may be prevented from taking place even tho in reality profitable. The young industries argument may be advanced. Ignorance, settled habits and prejudices, unaccustomed methods, the inevitable failures in first trials, all these obstacles, it is said, stood in the way of the beet-sugar industry in its first stages. Some sort of premium was necessary to give it a fair start. It is true that the argument for protection to young industries has not been supposed to apply to agriculture by List and his followers; since unalterable conditions of soil and climate are thought to determine once for all the geographical distribution of the extractive industries. But it would be hazardous to lay down an unqualified proposition of this sort. It is not impossible that the course of industry may be guided and diverted to advantage, in agriculture as well as in manufactures. The difference between the two cases would seem to be simply one of probability, of degree. It can doubtless be said that industry is more *likely* to pursue its "natural" course in the one case than

in the other; since agriculture rests mainly on physical adaptation, while in manufactures much depends on acquired skill. In the contemporary German controversy, the young industries argument has been advanced in support of the existing grain duties of that country.¹ It may be argued that, in the far West at least, beet-sugar making has proved its economic advantage. It certainly has passed the experimental stage; and it seems to have reached the stage where protection is no longer needed.

In general, the argument for nurturing protection remains of doubtful validity for agricultural products. In Germany, as in this country, education, experiment stations, diffusion of information adapted to the industrial conditions, are more promising means of promoting agriculture than tariff protection. There is quite as much weight in the counter argument that low prices and the need of facing a difficult situation are effective spurs to agricultural improvement, — more effective than high prices and easy gains. The low prices of raw sugar which prevailed for a long period proved a blessing in disguise to our Louisiana sugar growers: their methods of cultivation and manufacture were immensely advanced in the effort to meet new conditions.² It is difficult to give a conclusive or unqualified answer on the questions raised by the young industries argument; the whole problem of the causes of industrial progress is involved. Yet it remains true that acquired skill and established advantage count much more in manufactures than in agriculture, and that tariff protection is a very dubious device for spurring improvement in the use of the soil.

¹ For instance, by Ballod, in *Verhandlungen v. Vereins für Sozialpolitik*, 1909, p. 463.

² See testimony in the *Hearings on the American Sugar Refining Co.* (1911), p. 1760.

All this, however, has little bearing on the beet-sugar situation as it now stands. If protection to young industries was needed, it has been given. The initial stages of trial and unfamiliarity are certainly passed. The industry in the far West has quite passed the infant stage. Its difficulties in the farming region proper seem to be due to the competition of the other kinds of agriculture, which under the typical American conditions are more profitable. If this kind of agriculture needs protection, and if the familiar grain-growing, cattle-fattening and dairying, of the corn-wheat belt do not, the explanation is still to be found in the principle of comparative cost.

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THE RECENT RISE IN THE PRICE OF SILVER AND SOME OF ITS MONETARY CONSEQUENCES

SUMMARY

I. Extent of Rise in Price of Silver, 216. — High price in 1905-07, 218. — Peculiarities of the silver market, 219. — Causes of rise in price; the supply, 220. — The demand, for industrial uses, outside India, 222. — The industrial consumption in India, 224. — The monetary demand, for fiduciary coins, 226. — Germany, 227; France, 228; England, 229; United States, 229. — The heavy Indian monetary demand, 230. — The reserves built up by the Indian Government, 232. — Silver standard countries, 234. — How far the rise in silver was a part of the depreciation of gold, 237. — Prices and index numbers, 238. — II. Influences of the rise in price of silver on monetary systems, 239. — *The Philippines*; difficulties from higher price of silver, 240. — The export point of bullion, 241. — Export of coins, 242. — Prohibition of export in 1905, 244. — Other measures, 246. — Recoinage in 1906-07, with lowered silver content, 248. — Success of the measure, 252. — *The Straits Settlements*; gold standard in 1906, 254. — Straits silver dollar in danger of exportation; measures to prevent, 256. — Recoinage, 258. — Gold-exchange standard adopted, 260. — *Japan*; gold standard since 1897, 261. — Prompt recoinage of silver, 262. — *Mexico's* fortunate experience, 263. — Gold standard plan of 1903, 264. — Adopted in 1905, 267. — At first, export of old silver dollars by Government Commission, 269. — Rapid recoinage into new dollars, 271. — Gold certificates, 272. — Success of the operation, 273.

The great and unexpected rise in the price of silver during the years 1905 to 1907, followed by an equally great and unexpected decline, was a phenomenon of unusual importance. It necessitated alterations in the monetary systems of a number of countries, led to the recoinage of hundreds of millions of dollars, yielded to the governments concerned seigniorage

profits of tens of millions of dollars, and taught lessons which must prove of value to China and the South American countries which are at present contemplating important monetary reforms. Like the proverbial dog which licked the hand of the master who was about to beat it, silver rendered to several countries a most beneficent service at the very time they were discarding it as the standard money metal. It is the object of this paper to give a brief account of the silver market during the period in question, to consider the forces leading to the rise in the price of the white metal, and to trace some of the results as shown in the currency systems of the Philippine Islands, the Straits Settlements, Japan, and Mexico.

I

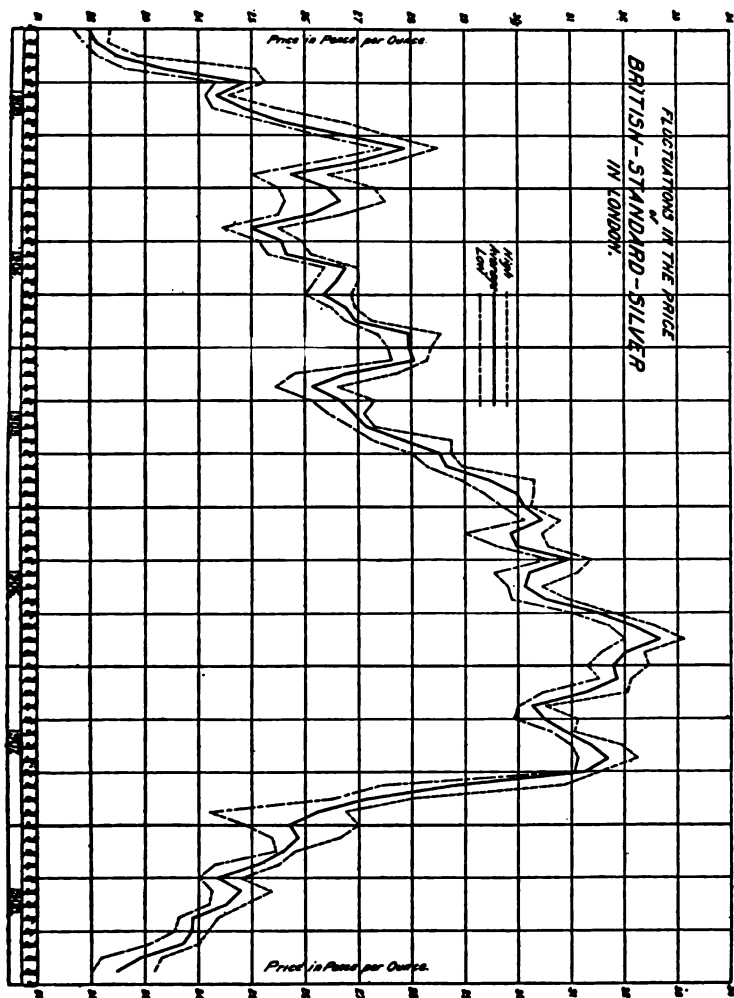
Extent of Rise in Price of Silver

From 1872 until 1903 the gold price of silver had tended strongly downward — a fact made familiar to all by the bimetallic controversy. The average annual price of British standard silver (*i.e.*, silver .925 fine) in London fell from 60½*d.* per ounce (giving a ratio with gold of 15.63 to 1) in 1872 to 24¾*d.* (giving a ratio of 38.10 to 1) in 1903; a decline having taken place in twenty-two of the thirty-one years. In only one month, October, 1900, the time of the adjustment of the Boxer troubles in China, had silver been above 30*d.* since November, 1896,¹ and the opinion had become quite general that silver had “come down to stay.” There was much talk of the probabilities of a further decline; very little of

¹ The figures for the price of silver are those for British standard silver in London as given in the annual circulars of Pixley and Abell, bullion brokers, London.

For a brief general history of silver the reader is referred to Paul George, *Die Bewegung des Silberpreises seit 1873*. Jena: Gustav Fischer, 1908.

the probabilities of a rise. The Mexican Commission on International Exchange in one of a series of valuable papers¹ treating the subject of silver submitted in June, 1903, to the British Commission said, after



¹ The papers are given in English in the 1903 Report of the Commission on International Exchange on Stability of International Exchange, pp. 173-196.

outlining the more important events in the recent history of silver: ". . . All of these events have made such a deep moral impression that at present silver is a subject of very little or no importance whatever to the business community of the two continents, and it is almost a disagreeable topic of conversation."¹

The extent of the advance in silver from 1903 to 1907 and of the subsequent decline will be seen from the chart on preceding page.

The average annual price which was $24\frac{1}{16}d.$ in 1902 rose to $24\frac{1}{2}d.$ in 1903, $26\frac{1}{2}d.$ in 1904, $27\frac{1}{2}d.$ in 1905, and $30\frac{1}{2}d.$ in 1906. Silver reached $30\frac{1}{2}d.$ an ounce in November, 1905, for the first time since October, 1896, while the high rate of November, 1906, *i. e.*, $33\frac{1}{2}d.$, is the highest rate quoted from October, 1893, to the present time (October 18, 1911). For the period 1903 to 1906 inclusive the range was 52.7 per cent, that is from $21\frac{1}{4}d.$ (January, 1903) to $33\frac{1}{2}d.$ (November, 1906). The low point in the price of silver having been reached about the end of 1902, the upward movement began the fore part of 1903, continuing, altho with frequent interruptions, until November, 1906. A high level was then maintained until the great slump in the autumn and early winter of 1907 — a fall from an average price of $31.68d.$ for August, 1907, to $26.24d.$ for December, 1907, and to $22.49d.$ for December, 1908. The range from August, 1907, to December, 1908, represented a decline of 31.7 per cent. It was not, however, until the summer of

¹ *Ibid.*, p. 190.

² Figures for the high and low prices and for the annual average prices were taken from the Pixley and Abell circulars; those for monthly average prices were taken from the United States Director of the Mint's Reports.

³ For 1909, the high, low, and average prices respectively were $24\frac{1}{2}d.$ (May), $23\frac{1}{2}d.$ (March and October), and $23\frac{1}{4}d.$; and for 1910 they were $26\frac{1}{2}d.$ (October), $23\frac{1}{2}d.$ (March), and $24\frac{1}{2}d.$

1905 that the price was sufficiently high and sufficiently well sustained to make the coinage question a critical one.

Before considering the causes of this phenomenal rise in the price of silver it will be well to mention certain peculiarities of the silver market. (1) The great bulk of the world's silver — estimated at 75 per cent in 1903¹ — is produced as a by-product of copper, lead, zinc, and gold, and changes in the price of silver ordinarily exercise very little influence upon its production. (2) A large part of the silver smelting business of the world is in the hands of three companies more or less allied to one another.² (3) The methods of selling and buying silver are peculiar and are conducive to the great instability which has characterized the price of the white metal in recent years. These methods have been described briefly by the Mexican Commission as follows: —

The miners are the producers of silver, and it is to their interest to sell silver at the best possible price, but only to a small extent do they have any direct connection with the silver market of the world.

¹ "The conditions as to the production of silver are radically different at the present time [1903] from those prevailing before the closing of the Indian mints and the great drop in the price which followed this action. The decrease in the production of silver from distinctively silver mines has been enormous, and it is believed at the present time not more than one-quarter of the world's production comes from this source. . . . The demand for and the production of copper has so enormously increased that from this source alone a very large production of silver is obtained. The largest single producer of silver in the United States is a distinctively copper mine. The cheapening of metallurgical processes has permitted of the working of ores, particularly those containing lead and gold in small quantities, to such an extent that from this source also a large proportion of the silver production of the world is obtained. The Broken Hills Proprietary Mine of Australia, a distinctively lead mine, is not only the largest producer of lead in the world, but also probably the largest producer of silver. At least 90 per cent, and probably 95 per cent, of all the silver produced in the United States is the product of lead and copper smelting, and the great increase in the production of silver in Mexico is entirely due to lead and copper smelting." Document submitted by the Mexican Commission on International Exchange to the British Commission, June 3, 1903. Report of the Commission on International Exchange, 1903, pp. 180-181.

² *Ibid.*, p. 181.

Most of the silver-bearing ores are sold to the smelters, as the improvement in metallurgy favors concentration of work. When the ore is sold to the smelters, the London quotation the day of shipment is paid to the miner.

The business of the smelter is not to speculate in the price of silver, but to draw its profits from the smelting charges. The smelting companies are, therefore, always anxious to sell their silver the day of purchase, so as not to endanger their otherwise sure profits on account of the fluctuations in the market. Under these conditions, silver is hurried to London as fast as it is refined, and as the daily sales are made at whatever the market price may be, there is little if any influence to withstand the natural desire of buyers to supply their needs at lower and lower prices. . . .

. . . The largest buyers of silver are the governments—for coinage purposes. There is no regularity¹ in their methods of buying, and there is always a feeling of uncertainty in the market as to the amount which they will buy and when they will buy it.²

Conditions such as these are largely responsible for the fact that silver, which was for centuries prior to the demonetization in the early seventies the most stable in its gold price of all commodities, had now become one of the most unstable.

We may now briefly consider some of the more important forces responsible for the rise in the price of silver during the period 1904 to 1907. The forces affecting the gold price of silver may be grouped under four rubrics, with the first two of which we are primarily concerned. They are: (1) the supply of silver; (2) the demand for silver; (3) the supply of gold; and (4) the demand for gold. The first two factors will be considered separately, the third and fourth grouped together.

Little help can be secured in explaining recent movements in the price of silver by reference to the

¹ One of the important tasks undertaken by the Commission on International Exchange was to bring about greater stability in the price of silver by inducing governments to buy their silver for coinage purposes at frequent and more or less regular intervals instead of spasmodically, in large amounts and in a haphazard way. Cf. Report of the Commission on International Exchange, 1903, pp. 29-32.

² *Ibid.*, p. 194.

figures for silver production. In the case of a durable commodity like silver the annual production represents such a small proportion of the total supply on the market that very great changes in production are necessary to have much immediate effect upon the supply. Obviously this is less true of silver than of gold, because as the result of the discontinuance of the free coinage of silver by most countries of the world, a much greater proportion of the world's existing stock of silver than of gold is "specialized," particularly in the form of fiduciary¹ (or token) coins, which circulate at a monopoly value substantially above bullion value. Nevertheless, when one considers the large quantities of Mexican and British silver standard dollars on the world's markets, the bar silver, the syce silver of China, and the mass of other relatively unspecialized silver of the Orient, he will realize that the annual production is at best a comparatively small factor in the world's marketable supply.

During the period in question, moreover, the most reliable figures available show the world's silver production to have been remarkably constant, incomparably more so than the world's gold production, as will be shown from the following table based upon the figures of the United States Director of the Mint.

Obviously variations in the price of silver during this period cannot be attributed in any appreciable degree to changes in the annual production of the white metal. We may therefore turn from the factors of supply to those of demand.

¹ By fiduciary coins is meant coins whose money value exceeds their bullion value by more than sufficient to cover a reasonable allowance for expenses of coinage. The expression "fiduciary coins" the writer believes to be preferable to the more common one "token money," since the latter carries the false implication that such coins are not in fact money but merely tokens for money.

Year	SILVER			GOLD			
	Production (Fine ounces) 000	Per cent increase or decrease over:		Production (Fine ounces) 000	Per cent increase or decrease over:		Average annual ratio with gold
		preced- ing yr.	year 1900		preced- ing yr.	year 1900	
1900	173,591			12,315			33.33
1901	173,011	*0.3	*0.3	12,626	2.5	2.5	34.68
1902	162,763	*5.9	*6.2	14,355	13.7	10.5	39.15
1903	167,689	3.0	*3.4	15,853	10.4	28.7	38.10
1904	164,195	*2.2	*5.4	16,804	6.0	36.5	35.70
1905	172,318	4.9	*0.8	18,396	9.5	49.4	33.87
1906	165,054	*4.2	*4.9	19,471	5.8	58.1	30.54
1907	184,207	11.6	6.1	19,977	2.6	62.2	31.24
1908	203,237	10.3	17.1	21,430	7.3	74.0	38.64

The chief of these factors may best be classified for our purpose as follows: —

A. Industrial Uses.

I. In the world exclusive of India.

II. In India.

B. Monetary Uses.

I. Fiduciary Coins.

(a) In Occident.

(b) In Orient.

II. Silver Standard Coins.

As the world's population and wealth increases it is but natural that there should be an increasing demand for silver for use in the arts. Among the principal industrial uses of the precious metals Touzet, in his work *Emplois Industriels des Métaux Précieux*, mentions the following (p. 24): the manufacture of jewelry, watches, firearms, surgical instruments, utensils of laboratories, fluorescent screens for radiography,

* Decrease.

gilding, plating, galvano-plastics, dentistry, photography, telephony, telegraphy, decorations upon porcelain, wood, and copper, manufacture of laces and fabrics.¹ The limits of this article will not permit a discussion of the industrial consumption of silver in different countries and in different uses. Persons interested in this subject are referred to M. Touzet's book. Here it will be sufficient to cite the figures for the world's industrial consumption of silver as estimated by the Director of the United States Mint, noting in passing that these figures are presented only as rough approximations, and that they have been severely criticised by high authorities.² Touzet criticises them but, while not accepting them for some countries, considers them the best available figures for the world as a whole, in view of the incompleteness of his own figures.³

WORLD'S CONSUMPTION OF NEW SILVER IN THE INDUSTRIAL ARTS⁴
(EXCLUSIVE OF INDIA)

Calendar Year	Ounces (Fine) 000	Per cent increase over year 1900	Per cent increase over preceding year
1900	41,061		
1901	44,003	7.3	7.3
1902	48,518	18.1	10.2
1903	49,937	21.6	2.9
1904	57,378	39.7	14.9
1905	50,718	23.5	*11.6
1906	51,046	24.3	0.6
1907	57,720	40.6	13.1
1908	56,986	38.8	*1.3

This table, compared with the table for silver production on page 222, reveals two noteworthy facts: (1)

¹ André Touzet. *Emplois Industriels des Métaux Précieux*, Paris: Giard & Brière, 1911.

² *Ibid.*, pp. 49, ff.

³ *Ibid.*, pp. 93-95.

⁴ Figures compiled from Annual Reports of the United States Director of the Mint on Production of the Precious Metals.

The world's consumption of silver in the industrial arts increased much more rapidly during the period than the world's production. Whereas the consumption in 1906 was 24.3 per cent larger than in 1900, and in 1907 was 40.6 per cent larger, the production in 1906 was 4.9 per cent smaller than in 1900, and in 1907 it was only 6.1 per cent larger than in 1900. Every year but one (1905) from 1901 to 1907 showed an increase in the industrial consumption over the preceding year; while four of the seven years (*i. e.*, 1901, 1902, 1904, and 1906) showed a decrease in the production as compared with the preceding year. (2) The second largest increase in the industrial consumption in any year over the year preceding was that of 1907, *i. e.*, 13.1 per cent, the largest being 1904 with 14.9 per cent. The years 1905 and 1906, altho showing a substantially lower industrial consumption than 1904, showed a larger one than any preceding year.¹ Such evidence as is available, therefore, points toward an increasing consumption of silver in the arts during this period, and particularly during the years 1904 and 1907.

The industrial uses of the second class mentioned are those of India. The demand for silver bullion in India for ornaments, and for hoarding, is so great, so variable, and so different from that of Europe and America that it is best considered by itself. From time immemorial prior to the closing of the Indian mints in 1893 India was known as the great sink of the precious metals. When the mints were closed and the value of the rupee was divorced from the value of its silver content, so that silver ornaments could no longer serve as a "savings bank" with the annual use of the ornament constituting "a sort of

¹ Cf. Tousset. *Op. cit.*, p. 94.

interest" and the privilege of free coinage into rupees "a sort of redemption fund," it was believed that the Indian demand for silver (for non-monetary purposes) would permanently decline. Events, however, have proved quite the contrary.

Below are given the figures for the net importation of silver into India (exclusive of importation by government for monetary purposes) since the fiscal year ending March 31, 1901.

IMPORTATION OF SILVER INTO INDIA 1901-1910¹

Fiscal year ending March 31	Total net importation British standard silver Ounces 000	Per cent increase over year 1901	Per cent increase over preceding year
1901	49,435		
1902	39,005	*21.1	*21.1
1903	42,274	*14.5	8.4
1904	79,182	60.2	87.3
1905	74,350	50.4	*6.1
1906	84,318	70.6	13.4
1907	118,199	139.1	40.2
1908	97,849	97.9	*17.2
1909	73,731	49.2	*24.7
1910	61,015	23.4	*17.3

* Decrease.

For this period, it is said, the annual value of net imports is "probably fairly representative of what is required for industrial purposes," . . .² for the silver bullion imported since 1893 "is largely and without delay manufactured into ornaments, a small proportion being passed into the mints of the native states."³

¹ Figures compiled from Financial and Commercial Statistics of British India, by the Director of the United States Mint, and given in the Annual Report on the Production of the Precious Metals, 1910, pp. 24-25.

² Reply to questionnaire of Director of United States Mint for 1904-05 given in Annual Report of the Director of the Mint, 1905, p. 180.

³ Ibid., p. 182. The coinage of silver bullion by the native states is said to have been much larger than usual in the years 1904, 1905, and 1906. That of 1904 required more than eight times as much silver as that of the preceding year. For 1905 it was about three-fourths as much as for 1904. Cf. Annual Report of Director of the United States Mint on Production of the Precious Metals for 1906, p. 32.

Here the evidence points to an irregular but increasing demand for silver for the industrial uses of India. The year ending March 31, 1907, *i. e.*, the fiscal year corresponding most closely to the calendar year 1906, showed by far the largest increase, with the fiscal year 1908 coming second and 1906 coming third. The greatest increase in any year over the preceding year was that of 1904, and the higher level reached in that year was maintained through 1909. For the large demand during the fiscal years 1906-08 the cause is found primarily in the great prosperity of India at this period — a prosperity which is clearly evidenced by India's trade statistics.¹

Let us now turn to the monetary demand for silver at this period, first considering the demand for fiduciary coins, and then that for standard coins. For present purposes it will be sufficient to consider the demand in a few of the chief countries which use large amounts of fiduciary silver coins. Those chosen are Germany, France, England, United States, and India.

After the seventies, when Germany, the Latin Union, the Scandinavian countries, Holland, and the United States went over to the gold standard, the world's free monetary market for the white metal had been greatly restricted, and the large accumulations of silver dating from the period when its coinage was free had proved more than ample to meet the needs of the principal countries for subsidiary coins. Of the larger silver coins such as the five franc piece, the thaler, and the American silver dollar there was a superfluity. As late as 1903, writes Charles A. Conant, who was a member of the American Commission on International Exchange,

¹ Cf. *infra*, p. 231.

several leading countries were employing old stocks of coin for making their smaller silver pieces, Germany had a stock of old thalers which the German Commission stated exceeded the demands of the circulation by 100,000,000 marks. . . . France and other countries of the Latin Union were burdened with an accumulation of heavy 5 franc pieces, which ceased to be popular in circulation and piled up in the vaults of the national bank to the exclusion of gold.¹

The United States had coined an excessive amount of silver dollars as the result of the coinage acts of 1878, 1890, and 1898, and large accumulations of silver bullion had been made as the result of the silver purchases under the Sherman Purchase Act (purchases which totaled 168,674,683 fine ounces).²

These supplies, however, were not destined to last forever. Population was growing, trade was increasing rapidly and every year was witnessing increased demand for silver coin, more particularly subsidiary coin.

Every year from 1903 to 1906 inclusive, Germany coined between sixty and seventy million marks of silver fiduciary coins, representing largely the recoinage of thalers. The demand for subsidiary coin, however, grew so rapidly that in 1907 the silver coinage was nearly eighty-five million marks, and the law of May 19, 1908, authorized an increase of the total amount of imperial silver coins from 15 marks per capita to 20 marks.³ By this time it was evident that Germany would soon be compelled to enter the market for the purchase of silver for subsidiary coins; a contingency realized in 1908, during which year the Government coined over fourteen million kilograms of bar silver,⁴

¹ The Rise of Silver, in *International Magazine*, January, 1907, p. 48.

² Annual Report of the Director of the Mint, 1903, p. 22.

³ Cf. Annual Report of the Director of the Mint, 1909, pp. 213-214.

⁴ *Ibid.*, p. 210.

while during the following year its coinage of fifty-three million marks of silver coins was made principally from silver bars purchased at current market prices.¹ The silver and other metallic money, aside from gold, held by the Reichsbank on December 31 of each year of the period 1903-06 showed a continual and pronounced decline.²

For France during the period under study the surplus silver was rapidly being depleted. The coinage of subsidiary coins out of metal obtained from melting down five franc pieces was as follows³ for the years 1903-06: —

1903	472,883 francs
1904	10,000,000 "
1905	9,410,452 "
1906	1,908,100 "

While the average gold holdings of the Bank of France increased from 2,103,100,000 francs in 1900 to 2,882,200,000 in 1906, the average silver holdings declined from 1,134,100,000 francs for 1900 to 1,049,400,000 francs for 1906, and the minimum annual silver reserve was lower in 1906 than in any other year since 1884.⁴ The published figures do not show what proportion of this silver in the Bank of France was composed of five franc pieces and what proportion of subsidiary silver; the fact that no five franc silver pieces had been coined since 1878,⁵ coupled with the large amount of recoinage of five franc silver pieces into subsidiary coin during the years immediately

¹ *Ibid.*, 1910, pp. 181-182.

² The holdings were as follows in millions of marks: 1903, 238.5; 1904, 221.3; 1905, 210.0; and 1906, 186.1. Cf. *Administration des Monnaies et Médailles, Rapport au Ministre des Finances*, for 1906, p. 82; and for 1907, p. 86.

³ Annual Reports of the Director of the Mint.

⁴ *Administration des Monnaies et Médailles, Rapport, etc.*, 1907, p. 85.

⁵ *Ibid.*, p. 56.

preceding 1906, make it probable that a growing proportion was composed of the more popular subsidiary coins.

Turning to England, we find the following figures for silver bullion purchased and silver coins issued at the Royal Mint: ¹ —

Calendar year.	Amount paid for Silver Bullion purchased	Nominal value of all Silver Coins issued during year.
1903	£49,632	£558,247
1904	53,139	605,801
1905	25,917	510,491
1906	456,580	1,705,070
1907	690,130	2,019,828
1908	350,560	816,251

Here there will be observed a very pronounced increase in the purchase of silver bullion in the years 1906 and 1907, the average purchase for these two years being over fourteen times as large as that for the preceding two.

The next country to be considered is the United States. By the act of March 3, 1903, the limitation which had restricted the amount of subsidiary coin outstanding at any time to \$100,000,000 was entirely removed; and in 1904 the coinage of silver dollars was discontinued. The Director of the Mint, in his report for 1903,² said there remained on hand on June 30, 1903, only 17,502,938 fine ounces of the silver bullion purchased under the act of July 14, 1890, and that "the entire amount will be used for coinage during the fiscal year 1904." Before the end of 1904 the Government found it necessary to begin to purchase silver bullion for its subsidiary coinage.³ Every year since

¹ Figures compiled from the silver coinage account of the Annual Reports of the Deputy Master of the Mint.

² P. 5.

³ Annual Report of the Director of the Mint, 1904, p. 18.

1903 silver bullion has been purchased (under authority of section 3526 Revised Statutes) for subsidiary coinage, altho the amounts so purchased were unimportant until the fiscal year 1907, when \$12,659,955 of subsidiary coins were coined from bullion purchased. Inasmuch as a dollar of subsidiary money contains about 72 per cent of an ounce of fine silver, this coinage for 1907 would require approximately 9,115,000 ounces.¹ It will be seen therefore that silver purchases by the United States government were becoming an important factor in the silver market at about the time of the rise in the price of silver in 1906-07.

The silver purchases of the Philippine Government during 1903-04 for the new Philippine coinage appear to have exercised a considerable influence upon the silver market, altho they did not represent a demand for additional silver, since the coins made therefrom displaced an approximately equivalent amount of silver in the form of Mexican dollars.²

The largest single factor in the increased demand for silver during the years 1904-07 was the monetary demand of India. This increased demand may be viewed under three aspects: (1) increased volume of trade, (2) increased price level, and (3) increased needs for silver reserves to anticipate future demands.

The years in question were years of prosperity for India, as will be evidenced by the following figures³ for the production of Indian staples; rice, wheat, tea, cotton and cotton goods.

¹ The coinage of subsidiary coins from bullion purchased during the next three years was: 1908, \$15,698,063; 1909, \$9,686,810, and 1910, \$4,220,731.

² Cf. E. W. Kemmerer, Report of the Chief of the Division of the Currency for the Philippine Islands, 1904, pp. 4 and 18; and for the year 1905, pp. 4, 5, 18, and 19.

³ The figures are taken from the Annual Reports of the Indian Government on East India, Progress and Condition; Railways; Sanitary Measures; Sugar; Textile Factories; Trade.

THE RECENT RISE IN THE PRICE OF SILVER 231

STATISTICS ILLUSTRATIVE OF TRADE CONDITIONS IN INDIA, 1898-1907 PRODUCTION

Fiscal year ending March 31. Average for five years ending	1903	1903	1904	1905	1906	1907
Estimated yield of cleaned rice ¹ (000 tons)	22.5	23.5	22.0	22.3	22.2	8
Estimated wheat production (000 tons) ..	6.2	7.8	9.4	7.6	8.6	8.5
Estimated production of tea ² (000,000 lbs) ³		209.9	212.6	221.5	240.8	
Cotton: Estimated acreage (000,000) ..	13.7	16.6	18.0	19.9	21.1	22.3
Cotton: Estimated yield in bales (000,000) .....	..	..	..	3.8	3.4	4.9
Cotton Goods: Estimated amount yarn spun (000,000 lbs.)	495.1	558.8	556.2	555.9	655.6	630.6
Cotton Goods: Estimated amount cloth woven (000,000 lbs.)	107.	117.3	131.9	152.7	156.6	159.0
Foreign Trade: ⁴						
Merchandise exports (000,000 £)	75.5	83.9	99.8	102.8	105.5	115.4
Foreign Trade: Merchandise imports (000,000 £)	50.1	52.5	56.5	64.5	68.7	72.2
Prices ⁵ (Atkinson Index Nos.) ⁶ 100 com- modities, average 1868-76=100	127	119	117	130	153	162

The period was also one of high and rising prices. Every one is familiar with the fact that there was a pronounced upward movement of prices in all gold standard countries during the period 1898-1907, and that this rise is generally attributed principally to the large and increasing gold production of the period. India like other gold standard countries experienced this advance. The unit of value in India is the rupee adjusted to a 16*d.* gold par, and when that gold par depreciated in value the world over, Indian prices naturally rose. The extent of this rise is shown by the Atkinson index numbers of Indian prices, the summary of which for one hundred commodities is given in the last column of the table.

¹ Figures cover Bengal, Madras, and 15 districts of Burma.

² Comparable figures not available.

³ Figures cover British India, Travancore, and Cochin.

⁴ Net imports and exports by sea, exclusive of those made on government account.

⁵ Cf. Fred J. Atkinson, *Rupee Prices in India, 1870-1908* in *Journal of the Royal Statistical Society*, vol. 72 (1909), pp. 500-501; also *Prices and Wages in India* (25th issue) compiled in the office of the Director General of Commercial Intelligence, Calcutta, 1908.

⁶ Figures refer to calendar years.

Figures given for agricultural products and for textile industries (referring to quantities, not values) point to a substantial increase in the volume of goods exchanged during the period 1904-07; figures for prices show a very strong upward movement. A larger volume of goods exchanged and a substantially higher price level would normally ¹ require an increase in the amount of money in circulation, which in India means primarily an increase in silver rupees. The actual increase in the monetary circulation of India (exclusive of a small amount of sovereigns) is shown by the following figures prepared by Mr. Fred J. Atkinson, Accountant-General for the United Provinces of India.²

Fiscal year ending March 31	Amount of money in circulation (crores of rupees)
1903	175
1904	187
1905	197
1906	210
1907	234
1908	233

A very substantial increase will be observed for every year from 1903 to 1907, an increase in four years of 590,000,000 rupees, or of nearly 34 per cent of the total circulation. This is a phenomenal increase for a country like India.

In addition to the heavy purchases of silver necessitated by this large increase in the actual circulation there were substantial purchases for the purpose of building up an emergency reserve to anticipate future demands. The Indian Government found itself threatened with the danger of not being able to secure

¹ That would be the case unless there were a great increase in the rate of monetary turnover, or a large development of banking facilities, etc., in India during the period — contingencies which did not occur.

² *Journal of the Royal Statistical Society*, vol. 72 (1909), pp. 510-511.

silver and to coin rupees fast enough to meet trade requirements. Silver had to be procured principally from abroad. "From the date when Government decides to buy silver for coinage, down to the date when the new rupees coined therefrom become actually effective for meeting the trade demand, there is an interval of not less than five weeks, which may easily be exceeded."¹ To meet this situation the Government arranged to maintain a special Ingot Reserve of silver bullion in India sufficient to coin 30,000,000 rupees, these ingots to be passed through several of the preliminary stages in the process of minting. The reserve was accumulated by November, 1905, and was to be used only in times of emergency. From the Financial Statement of the following year (1906-07)² we learn that the Ingot Reserve proved of great service but that the demand for rupees became so large that the Reserve was completely exhausted by the middle of January, and that it was decided to raise it to an amount sufficient to coin 60,000,000 rupees, the coining of which would keep the mints fully occupied for two months. During the fiscal year 1907-08, the demand for rupees continued heavy and the Ingot Reserve as part of the Note-Issue Reserve was discontinued, and a special silver rupee reserve of 60,000,000 rupees was built up out of the profits of coinage as a part of the Gold Reserve Fund, the name of this fund being changed to Gold Standard Reserve Fund, since it was no longer composed entirely of sterling securities and gold.³ The Ingot Reserve, therefore, and its successor, the Rupee Fund of the Gold Standard Reserve Fund, represent for the latter years of this period a perpetual demand for silver, over and

¹ Financial Statement of India, 1905-06, p. 18.

² Pp. 17-18.

³ Financial Statement, 1907-08, pp. 23-26.

above that represented by the silver in circulation and in the Note Reserve, of 22,299,000 ounces of British standard silver (*i. e.*, enough to coin 60,000,000 rupees.)

One cannot measure the influence of India's demands upon the silver market by the actual amounts of silver absorbed in the circulation and in the reserves. One of the most striking characteristics of the silver market in recent years is its extreme sensitiveness to all sorts of rumors. Exaggerated notions as to India's probable future demands for silver appear to have exercised a considerable influence upon the market.¹

During the latter part of the fiscal year 1908 and for some time thereafter, there was great depression in India, and substantial reductions in the rupee circulation were required. With the interesting currency developments in India during the period 1908-10 we are not here concerned. The important fact to be noted is that the large demand for silver coins in India, both actual and prospective, was one of the chief factors in the rise in the price of the white metal during the years 1904 to 1907.

The final subject to be considered under the demand for silver is the demand on the part of silver standard countries — at this period comparatively few in number.² This demand is very different from the demand for silver for monetary uses on the part of gold standard countries. In gold standard countries the demand for silver either as a secondary medium

¹ Cf. *Financial Statement for India, 1904-05*, pp. 9, 51; *ibid.*, 1905-06, p. 17; *ibid.*, 1906-07, p. 16; *ibid.*, 1907-08, pp. 22-23.

² During the period 1904-07, the chief silver standard countries of the world were: (1) China, where the silver standard is dominant in the Port Cities, and in the larger trade of the interior cities, but where the bulk of the transactions are in reality effected on a copper-bronze "cash" standard; (2) Bolivia, (3) Salvador, (4) Honduras, (5) Nicaragua, and (6) Persia.

of exchange, as in France and the United States, or as the chief medium of exchange as in India and the Philippines, is not a function of the value of silver.¹ India needs no more rupees and the United States no more silver dollars, silver certificates, or subsidiary coins, when the price of silver is 22*d.* an ounce than when it is 30*d.* In India and the Philippines the silver circulation is determined primarily by the value of gold, and in the United States and France by the convenience of the public, — not by the value of silver.

When we turn to silver standard countries the situation is reversed. The amount of silver in circulation, in silver standard countries considered as a whole, is primarily a function of the value of silver. When the value of silver declines the higher price level is expressed through a larger circulation, and when it

¹ In so far as changes in the value of silver expressed in terms of gold (*i. e.*, gold price of silver) represent alterations in the value of gold *per se*, it may be said that a rise in the price of silver means a less valuable gold unit of value and therefore higher prices and vice versa; that a higher price level requires more money, other things equal, and that an increase in the monetary circulation involves an increase in subsidiary silver coins. It by no means follows, however, that an increase in the total circulation calls for anything like a proportionate increase in the circulation of subsidiary coins. Subsidiary silver is used for making purchases, and as till money for "making change." The amount required by the public is more largely a matter of custom and of convenience than of the price level. If the price level were doubled, for example, articles which were formerly 5 cents would be 10 cents, those which were formerly 10 cents would be 20 cents, those which were formerly 25 cents would be 50 cents, those which were formerly 50 cents would be \$1.00. Payments made in exact sums (*i. e.*, not requiring change) would require twice as much silver in the second and third cases, probably no silver coin at all in the fourth case, and probably silver in the first case instead of nickel. If the payments in each series were made by means of "a dollar bill" and change called for, the lower price level would require \$3.00 in change while the higher one but \$2.10. A strong force against the increase of subsidiary coins is the unwillingness of people to carry much "change" in their pockets; on the other hand such factors as the growth of urban and interurban street-car traffic, of "5 and 10 cent stores," and of odd price "bargains" favor an increase in the circulation of subsidiary coins. It is to such factors as these rather than to the higher price level of recent years that one must attribute the fact that from 1901 to 1909 the per capita circulation of subsidiary silver coins in the United States increased 43.1 per cent while the per capita circulation of all kinds of money increased but 24.8 per cent.

The subject of subsidiary and minor coins represents an important tho comparatively untrodden field in monetary science.

raises the lower price level is expressed through a smaller circulation.

The price level in one silver standard country may of course be temporarily out of equilibrium with that of other silver standard countries, because of some sudden alteration in the demand for (or supply of) money in that country, as was the situation in Manchuria at the time of the Russo-Japanese War, when military operations in that country created an exceptionally large demand for silver and drained off large quantities of the white metal from nearby silver standard countries. Such cases, however, are only temporary, and the resulting flow of silver is but a movement for the re-establishment and maintenance of equilibrium. The demand for silver for standard money by a silver standard country is for a definite amount only in the sense that such a country must have an amount of money such as to keep its price level in equilibrium with the price levels of other silver standard countries; and the demand for silver for silver standard money by all silver standard countries taken together is for definite amounts only in the sense that the price level of silver standard countries must be such as to keep the monetary value of silver in equilibrium with the merchandise value.¹ The price level in silver standard countries is the principal equilibrator between the demand for silver and the supply of silver, and for this reason the absorption of silver for monetary uses in such countries need not be studied further among the definite factors in the increased demand resulting in the great advance in the price of silver during the years 1904-07.

Any discussion of the gold price of silver would be

¹ Cf. E. W. Kemmerer, *Money and Credit Instruments in their Relation to General Prices*, 2d ed., New York, Henry Holt, 1908, pp. 43-48.

incomplete that did not consider the gold side of the price ratio. To say that silver is 30*d.* an ounce is to express the value of gold in terms of silver as much as to express the value of silver in terms of gold. A rise in the price of silver may be due obviously either to an appreciation of silver *per se* or to a depreciation of gold *per se*. The rise in 1904-07 was apparently due to a combination of these causes. During this period there was a strong upward movement of prices in all gold standard countries; and silver would naturally be expected to share in this rise in so far as the rise represented the depreciation of gold *per se*.¹

The best method of estimating roughly the extent to which the rise in the price of silver was due to the depreciation of gold is to assume that the value of all other classes of commodities on the average remained constant during this period, and that the departure of gold from commodities in general was due to changes in the value of that metal. On the other hand, the extent to which silver moved away from commodities in general may be interpreted as roughly measuring the actual rise in the value of silver. Inasmuch as it is world values with which we are concerned and not those of any particular country, a wide range of world prices is desirable as a basis of comparison. Unfortunately satisfactory price index numbers exist for very few countries, and the index numbers we possess are computed on such widely different bases that they are not readily comparable. Taking the best available, however, adjusting them all to a basis of the year 1900 as one hundred, and arbitrarily assigning to the general index numbers of each country the

¹ This statement is subject to the qualification that the tendency of silver to rise in price along with other commodities might be offset in part by a lessened demand for silver arising from the fact that the depreciated gold would tend to be used more and more as a substitute for silver in monetary and merchandise uses.

same importance, we arrive at a series of index numbers of world prices. The reciprocals of these price index numbers would obviously be index numbers of the value of gold.

INDEX NUMBERS OF WORLD PRICES SHOWING THE FLUCTUATIONS
IN THE VALUE OF GOLD AND SILVER

Year	(1) United States, Bureau of Labor Index Num- bers	(2) Canada, Coates Index Numbers	(3) England, Sauerbeck Index Numbers	(4) France, ¹ De Foville Index Numbers for export prices	(5) Germany, ¹ Index Numbers of Ham- burg prices	(6) Italy, ¹ Necco Index Numbers of export prices	(7) India, ¹ Atkinson Index Numbers	(8) World, Index Numbers of Prices	(9) World, Index Numbers of Value of Gold	(10) London Price of British Standard Silver Index Numbers
1900	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1901	98.2	100.1	93.3	96.3	101.8	96.8	97.1	97.7	102.4	96.2
1902	102.2	103.5	92.0	96.6	91.1	98.7	89.2	96.2	103.9	85.2
1903	102.8	103.6	92.0	98.5	91.1	102.4	85.6	96.6	103.5	87.6
1904	102.3	104.4	93.3	97.9	90.3	101.3	84.2	96.2	103.9	93.3
1905	104.9	107.4	96.0	100.1	93.8	102.7	93.5	99.8	100.2	98.4
1906	110.8	113.4	102.7	104.5	99.1	105.9	110.1	106.6	93.8	109.3
1907	117.2	122.0	106.7	....	105.3	111.5	116.5	113.2 ²	88.3 ³	106.9

The index figures for world prices (being a simple average of those for the seven countries mentioned in columns one to seven) are given in column eight of the Table. In column ten are given index numbers of the average annual price of British Standard Silver in London.

Limiting ourselves to the period 1903-07, during which the rise in the price of silver occurred, the

¹ Figures computed from table given by Achille Necco, in *La Curva dei Prezzi delle Merci in Italia negli anni 1881-1909*. Torino: Società Tipografica Editrice Nazionale, pp. 6 and 7.

² Cf. Fred J. Atkinson, *Rupee Prices in India, 1870-1906*, in *Journal of Royal Statistical Society*, vol. 72 (1909), pp. 500-501.

³ Average does not include figure for France.

evidence of the table is as follows. From 1902 to 1903 the index number of the price of silver rose from 85.2 to 87.6 or 2.8 per cent, while that for world prices rose from 96.2 to 96.6 or 0.4 per cent; approximately 86 per cent of the rise in the price of silver in 1903 may therefore be attributed to the appreciation of silver, and 14 per cent to the depreciation of gold. By a similar calculation for the other years we arrive at the following table, which constitutes the conclusion of this part of the study.

Year.	Increase in Price of Silver	Increase in World Prices	Percentage of Increase in Price of Silver attributable to Appreciation of Silver	Percentage of Increase in Price of Silver attributable to Depreciation of Gold
	Per cent	Per cent		
1903	2.8	0.4	86	.14
1904	6.5	-0.4 ¹	106 ²	-.06
1905	5.5	3.7	33	.67
1906	11.1	6.8	39	.61
1907	2.2 ¹	6.2	— ³	— ³

II

Influences of the Rise in the Price of Silver upon the Monetary Systems of Certain Countries

The question may now be asked: What effects did this rise in the price of silver have upon the monetary systems of those gold standard countries whose silver coins were at a high ratio with gold? Among these

¹ Decrease.

² This means that the appreciation of silver accounts for the entire rise in price, and in addition compensates the appreciation in gold; for silver rose 6.5 per cent in value in terms of gold, which itself rose about 0.4 per cent.

³ In order for the value of silver to have remained constant as regards its relation with commodities in general, silver would have had to rise in its gold price by 6.2 per cent. Its gold price actually fell 2.2 per cent, so that its value fell as regards commodities 8.4 per cent.

countries the Philippine Islands, the Straits Settlements, Japan, and Mexico deserve attention. They will be considered in their order, particular attention being given to our own colony, the Philippines, and to our nearest neighbor to the south, Mexico.

The Philippines

By the spring of 1905 the work begun in 1903 of transferring the Philippine Islands from a silver standard currency, with a circulation equivalent to about sixteen million dollars of United States money, to a gold exchange standard currency, with an entirely new coinage, was practically completed.¹ Every one was relieved that the reform had been so quickly and so successfully accomplished; and prospects were bright for a long period of freedom from currency disturbances. Just at this point, however, a new difficulty appeared from the rising price of silver.

At the price of 29½d. per ounce for British standard silver (and at 64½ cents for fine silver in the United States), the newly introduced Philippine peso, likewise the new subsidiary coins,² would reach their bullion par, and consequently be in danger of the melting pot. This does not mean that at these prices Philippine coins would have been melted and exported. To find the actual export point a number of other factors, all of them more or less variable, had to be taken into account, the chief of which were the following: —

¹ For a full account of the Philippine Currency Reform down to the spring of 1905, see E. W. Kemmerer, *The Establishment of the Gold Exchange Standard in the Philippines*, in *Quarterly Journal of Economics*, August, 1905, pp. 585-609.

² The new silver coins were all .900 fine, the peso, or two half pesos, weighing 416 grains, and the twenty centavo and ten centavo pieces weighing 415.5 grains to the peso.

(1) If the destination of the silver were London, it could not be laid down there normally in less than forty days from the date of shipment, while actual delivery could not be made for several days more because of the time required for smelting, refining, and putting into bars. If the silver were to be shipped to London, therefore, the determining rate would not be the prompt price but the price for sixty days forward delivery. If, on the other hand, it were to be used as bullion in Hong Kong, and did not require first to be shipped to London, it might bring a price as bullion higher than the prompt price in London by an amount sufficient to cover the difference between the expenses of shipping (inclusive of interest) from London to Hong Kong, and those from Manila to Hong Kong. Obviously the destination of the silver was an important point to be taken into account.

(2) A second factor was the expense of shipping. Silver coins to be exported must be sorted, boxed, loaded, insured, shipped, and unloaded. In some instances brokerage commissions must be paid. The total expense of shipment cannot be stated exactly, because it varies from time to time, and because banks frequently have special contract rates for shipping treasure. One per cent was probably a safe computation at the time for such expenses on shipments to London, and $\frac{1}{4}$ of one per cent on shipments to Hong Kong.

(3) A third factor was exchange. If exchange on the place of destination were low, the exporter of silver would receive an additional profit; if it were high, his profit would be diminished. An important element in the quoted rate of exchange in a country so distant from the great financial centers of the world as the Philippines is the item of interest.

(4) A fourth factor consists of the expenses of smelting, refining, putting into bars, etc., which the writer is informed amount to upwards of two per cent.

There were in addition numerous other factors which had to be taken into account, as, for example, the abrasion of the coins (a very small item in this instance), the firmness of the silver market, and the method of payment at the place of destination.

Taking all of these factors into consideration, it seemed improbable that the shipment of Philippine silver coins to London as bullion would become profitable before forward silver (sixty days) reached $30\frac{1}{4}$ to $30\frac{1}{2}d$. It was to be considered, however, that circumstances might exist such as to make shipping profitable even below $30d$.

There was another important phase of the problem, however, which does not appear to have been generally understood. It was the possibility that Philippine coins might be exported not as bullion but as money — a possibility which became a reality the following year.¹

The circulating medium of Hong Kong, Shanghai, Tientsin, Peking, and many other oriental cities contained a great variety of different kinds of silver "dollars." In these cities Mexican dollars, old and new, British dollars, old Hong Kong dollars, and several kinds of more recent Chinese dollars passed current, usually at different rates when paid in substantial quantities. In Hong Kong, for example, the unit of account is commonly so-called "Hong Kong currency," that is, the bank notes of two large banking institutions. These notes are redeemable in "chopped" dollars which when paid in large quantities usually pass by weight. In Canton and other places near

¹ *Infra*, pp. 245, 246.

Hong Kong, the chopped dollar usually commands a slight premium in "Hong Kong currency"; the new Mexican dollars nearly always command a premium; Mexican dollars of the old die command a still larger premium, frequently from three to four per cent; likewise British dollars. In November, 1905, a premium of $3\frac{1}{2}$ per cent was quoted in Hong Kong for the British dollar, and it was said that a million or more new Straits Settlements dollars that were exported from Singapore before exportation was prohibited had found their way largely to Hong Kong¹ and there commanded the same premium as the British dollar to which they conformed in weight and fineness.

With the close proximity of the Philippine Islands to Hong Kong, and the large Chinese population in the Islands, it did not seem improbable that Philippine pesos might be shipped as money to Hong Kong and there pass current, or at least prove acceptable as bank reserves. Certainly, if they would not be received at a premium as "clean" dollars, they would be readily received if they should lose their identity by being "chopped."²

The total expense of shipping Philippine silver coins from Manila to Hong Kong, it was estimated, would not exceed $\frac{1}{4}$ of one per cent. Interest charges, and the item of exchange also, would be almost negligible. There would, moreover, be no charges for melting, refining, etc. The situation may be illustrated by an example. Sterling telegraphic transfers in Manila on November 9, 1905, were quoted at $20\frac{3}{8}d$.

¹ Cf. E. W. Kemmerer, *A Gold Standard for the Straits Settlements*, II, in *Political Science Quarterly*, vol. xxi, p. 664 and note 3.

² The "chopped" dollar in Hong Kong, as measured by sterling exchange, often varied several per cent on either side of the value of its silver content in London. Cf. E. W. Kemmerer, *Second Annual Report of the Chief of the Division of the Currency for the Philippine Islands*, pp. 23-28.

and in Hong Kong at $20\frac{1}{4}d.$ One fourth of one per cent would have covered all charges of shipping Philippine coins to Hong Kong on that date. Therefore if Philippine pesos had commanded the same premium in Hong Kong that British dollars and Straits Settlements dollars of exactly the same weight and fineness are said to have commanded, *i. e.*, $3\frac{1}{4}$ per cent, there would have been a net profit on exportation of about 3 per cent, altho the exportation of Philippine coins to London as bullion on that day (the prompt price of silver was $29\frac{1}{8}d.$) would have involved the exporter in a loss.

The situation in the Philippines was further complicated by the fact that the supply of pesos in the treasury vaults available for increasing the circulation was low, and there were prospects that the Government would soon be called upon again, under the principles of the gold exchange standard, to purchase silver bullion for further coinage.

On November 6, 1905, the price of silver in London passed the $28d.$ mark (reaching $28\frac{1}{4}d.$), and with that the Philippine Government began to consider measures to protect its currency. An act was passed November 17th, to take effect immediately, prohibiting the exportation of Philippine silver coins or of bullion made by melting or otherwise mutilating such coins. The act provided that any such silver coin "which is exported, or of which the exportation is attempted . . . shall be liable to forfeiture under due process of law, and one third of the sum or value of the bullion so forfeited shall be payable to the person upon whose information, given to the proper authorities, the seizure of the money or bullion so forfeited is made. . . ." It was further enacted that the exportation or attempt to export such coin or bullion

shall be "a criminal offence, punishable, in addition to the forfeiture of said coins or bullion . . . by a fine not to exceed ten thousand pesos, or by imprisonment for a period not to exceed one year, or both, in the discretion of the court." This law suggests some of the currency laws of the seventeenth and eighteenth centuries in Europe which were inspired by the economic philosophy of the Merchantilists. Its *raison d'être*, however, in the Philippines was far different. There it was looked upon merely as a temporary and emergency measure, and the authorities fully appreciated that if the profits realizable on illicit exportation should become very large, no penalty however severe could prevent smuggling. Many thought that the price of silver had already reached its maximum. At any rate the Philippine Government would have to await the action of Congress for authority to recoin.

The act prohibiting the exportation of silver coin and bullion proved remarkably effective for some time, and not until the summer of 1906 was there any evidence that it was being evaded to any extent. On May 23, 1906, silver in London was quoted at 31½d. or 7.3 per cent above the bullion par of the Philippine peso; there was then a slight reaction through August, but on September 24th the price reached 31½d. or 8.5 per cent above bullion par, on October 27th 32½d. or 11.3 per cent above bullion par, and on November 17th 33½d. or 13.2 per cent above bullion par. This last price represents the maximum price of silver from October, 1893, to the present time (October 18, 1911). At such prices the profits realizable upon exportation were so large that it is not surprising that there was some smuggling, when one bears in mind the peculiar character of the Philippine "coast line," — a coast line approximately as large as that of the

United States, — the proximity of the Philippines to China, and their close trade relations with Chinese ports, especially Hong Kong. Notwithstanding the rigor of the law prohibiting the exportation of silver coins or bullion obtained by melting them, "and the extreme vigilance exercised by the Government, it is estimated that between P750,000 and P1,000,000 were exported, all of it probably going to China. In fact the Hong Kong and Shanghai Banking Corporation at Hong Kong is reported as having held in its vaults as much as P400,000 at one time."¹

In addition to the law prohibiting the exportation of silver, other temporary measures were soon taken to enable the Government to meet the increasing demand for currency without the necessity of suffering the losses which would result from the buying of silver for further coinage at prices above bullion par. The Government's telegraphic transfer rate for the sale of gold standard fund drafts in Manila on New York was reduced by an order of March 15, 1906, from $1\frac{1}{2}$ per cent to $\frac{3}{4}$ of one per cent, a procedure of very dubious advisability under the principle of the gold exchange standard,² and one which gave little, if any, actual relief.³ United States paper money still circulated in the Philippines and the Government resorted to its more extensive use. With this object the sum of \$1,850,000 of United States currency belonging to the Philippine Government and on deposit in New York was ordered shipped to Manila in the spring of 1906.⁴

¹ Report of the Insular Treasurer for 1907, in Report of the Philippine Commission, 1907, Part III, p. 68.

² For an explanation of the gold exchange standard as it exists in the Philippines, see E. W. Kemmerer, *The Establishment of the Gold Exchange Standard in the Philippines*, in *Quarterly Journal of Economics*, August, 1905, pp. 588-592.

³ Cf. Annual Report of the Treasurer of the Philippine Islands, 1906, p. 14.

⁴ *Idem*.

A measure of more permanent importance calculated not only to meet the demands of the time for more pesos without the necessity of further purchases of silver bullion, was the one recommended by the Philippine authorities to the United States Congress with reference to the silver certificate reserve. Philippine silver certificates were issued on the same plan as are silver certificates in the United States, being backed peso for peso by silver coin in the silver certificate reserve. The plan had been adopted for the Philippines by Congress in the Philippine Coinage Act of March 2, 1903, and was subject to amendment only by Congress. In June, 1906, there was in circulation approximately P10,500,000 of silver certificates, representing an equal amount of silver pesos in reserve. At the same time there was in the Philippine Treasury, as there had been for a number of years, several million dollars of United States gold coin, which had been shipped to the Philippines for purposes of United States army and navy disbursements, and which were not acceptable as a circulating medium in the Islands, since gold coins when paid out promptly disappeared into hoards or were exported. The plan recommended by the Philippine Government and adopted by Congress in the act of June 23, 1906, was this. The Treasurer of the Philippine Islands, with the approval of the Governor-General, was granted authority to substitute for any part of the silver pesos thereafter deposited in the silver certificate reserve gold coin of the United States (which was unlimited legal tender in the Philippines at the rate of two pesos to the dollar) and to redeem the certificates thereafter issued in either silver pesos or gold coin of the United States at his option; provided that the amount of gold coin held in the reserve should not

at any time exceed sixty per cent of the certificates outstanding. The authority thus given was immediately utilized by the Philippine Government, and the contract upon the certificates was so altered as to make them payable in silver pesos or gold coin of the United States at the option of the Philippine Government.

This action was difficult for many people in the United States to understand, since it represented such a reversal of our own currency experiences. Silver coin in the Philippines had proven too valuable because of the appreciation of silver and, in order to avoid the necessity of purchasing more silver bullion at the time and to prevent the silver certificates from appreciating above the standard unit of value (*i. e.*, 12.9 grains of gold .900 fine or the equivalent of \$.50 gold), the certificates were made payable in the future, at the option of the Government, in the *cheaper money*, *i. e.*, gold coin.

These measures offered only a partial solution of the problem; most of the outstanding silver certificates still bore on their face a promise to pay in silver, and nearly two thirds of the money in circulation in the Islands was silver coin worth much more as bullion than as money *if it could only be gotten out of the Philippines*. Obviously a recoinage of this money into coins of a smaller fine silver content was imperative. Recoinage could be undertaken, however, only on the authority of the United States Congress. Such authority was sought, and Congress responded promptly in the act of June 23, 1906, which left the matter of recoinage very largely to the discretion of the Philippine Government.

Section one of this act provided

That, with the approval of the President of the United States, the Government of the Philippine Islands is . . . authorized . . .

to change the weight and fineness of the [Philippine] silver coins . . . and may in its discretion provide a weight and fineness proportionally less for subsidiary coins than for the standard Philippine pesos, and may also . . . recoin any of the existing coins of the Philippine Islands at the new weight and fineness when such coins are received into the Treasury or into the gold-standard fund of the Philippine Islands: *Provided*, that the weight and fineness of the silver peso to be coined . . . shall not be reduced below seven hundred parts of pure silver to three hundred parts of alloy.

Congress, accordingly, placed no restriction upon the weight of the new coins and practically none upon the fineness, since no one thought of adopting a fineness lower than .700 for any of the silver coins.

The problem of deciding to what extent and in what manner the fine silver content of the coins should be reduced was not an easy one. Certain technical requirements of coinage obviously must be met, so that the coins would be satisfactory in wearing qualities and in appearance. In addition the new coins must meet three important conditions: (1) They must be reduced in fine silver content sufficiently to remove the danger of their being driven to the melting pot. But how could this be done unless one could foresee the future price of silver? When Congress passed the Philippine Coinage Act, March 2, 1903, it allowed a margin of 32.4 per cent,¹ which was believed by nearly every one to be ample. That margin had now been used up and 13 per cent more,² by the advance in silver. Some persons well informed with regard to the silver market were predicting a continued rise in silver until the time honored ratio of 15½ to one should again be realized. Clearly the history of the price of silver during the immediately preceding years

¹ This figure is derived by comparing the bullion par of the peso, 20½d. per ounce, with the average price of silver for February, 1903, of 22½½d.

² Cf. *supra*, p. 218. This percentage is computed from the maximum price of silver in 1906, i. e., 33½d. on November 17th.

did not justify much confidence in prophecies concerning its future. (2) The second condition was that the coins should not be so reduced in weight as to unduly encourage counterfeiting. In the orient, where labor is cheap, where the natives are noted for their mechanical skill (as in the Philippines), and where the machinery for preventing counterfeiting is not so efficient as in Europe and America, the danger of counterfeiting is a real one, and is materially increased when there is a wide margin between the bullion value of coins and their money value.¹ (3) The other condition was that the coins should not be reduced so much in weight as to endanger their acceptability by the people as equivalent to the existing larger weight coins. The natives would naturally be suspicious of any reduction in the size of the coins so soon after the existing Philippine coins had been put into circulation at a premium over the silver standard coins with which they had been long familiar. It is true they were accustomed to monetary changes² and to light weight silver coins circulating at a par with heavier coins.³ Unfortunately, however, many of them were suspicious of the American Government, and there were not wanting many people, especially Chinese money changers, who would gladly exploit their ignorance and distrust.

After weighing these various factors it was decided that the wisest plan, in spite of the risk of experiencing

¹ United States silver dollars were extensively counterfeited in the Philippines during the early years of the American occupation. Recently the development of an efficient police service in the Philippines has greatly reduced the danger of counterfeiting.

² For a compilation of laws and executive orders with reference to currency matters in the Philippines for the period 1561-1893, see D. F. Aguilar y Biosco, *Legislacion sobre Moneda Filipina*, Manila, Tipografia "Amigos del Pais," 1893.

³ First Annual Report of the Chief of the Division of the Currency for the Philippine Islands, 1904, pp. 11-16.

some temporary difficulties in putting the new coins into circulation, was to make a very substantial reduction in both the weight and fineness of all the silver coins. The gross weight of the peso was accordingly reduced from four hundred and sixteen grains to twenty grams (*i. e.*, approximately three hundred and nine grains), and the fineness from .900 to .800, thus reducing the fine silver content of the peso by 34 per cent, and changing the ratio with gold from 32.25 to 1, to 21.3 to 1. With this ratio the new peso will not be in danger of the melting pot until silver reaches approximately $44\frac{1}{2}d.$, and before that time both the Indian rupee (with its ratio to gold of 21.9 to 1) and the new Japanese silver coins¹ (with their ratio of 21.6 to 1) would have passed the bullion point. The Philippine peso in the future, therefore, is well protected by the large silver circulation of these two countries.

The recoinage law made the silver subsidiary coins exactly proportionate in weight to the peso, but reduced their fineness from .900 to .750. Having a larger percentage of alloy than the peso, the new subsidiary coins will not reach their bullion par until the price of silver rises to $47\frac{1}{2}d.$ (giving a ratio with gold of 19.9 to 1). Long after the peso would go to the melting pot, the subsidiary coins would remain in circulation; and to orientals the half peso is usually as acceptable a medium of exchange as the peso. In Spanish times the half peso was unlimited legal tender.

Shipments of the old coins to the United States mints for recoinage began December 15, 1906,² and have continued from time to time ever since. By the

¹ *Infra*, p. 263.

² Report of the Treasurer of the Philippine Islands, 1907, in Report of Philippine Commission, 1907, Part III, p. 68.

end of the fiscal year 1910, P28,850,373 out of a total of P32,779,282 had been returned to the mint for recoinage.¹ Of the less than four million remaining it is estimated that about a million have been smuggled out of the country.

The first consignment of the new coins arrived in Manila on May 4, 1907, and the operation of placing the new money in circulation was commenced immediately. A provision in the Philippine recoinage act of December 6, 1906, required, for the purpose of expediting the ready circulation of the new coins, that the Treasurer should prepare an explanatory circular which should be translated into the various languages and dialects of the Philippines and should be distributed throughout the Islands. This circular should "explain the reason for the recoinage" and should "inform the public that the new coins will be received in payment of all taxes and Government dues, and will be legal tender for private debts as the equivalent of the old coins; that they will be receivable in Manila for the purchase of gold drafts on the same terms as the old coins, and that they may be exchanged on demand at the Insular Treasury in Manila and at various provincial treasuries throughout the Islands for silver certificates, and if desired for nickel and copper coins." Such a circular was prepared and translated into Spanish, Chinese, and eleven native dialects and distributed throughout the country. "In addition all provincial treasuries were directed to carry on a general campaign of education in order that . . . [the people] might become thoroughly acquainted with the new currency and the reasons for the change in its weight and fineness."²

¹ Report of the Treasurer of the Philippine Islands, 1910, p. 32.

² Report of the Treasurer of the Philippine Islands, 1907, p. 68. Op. cit.

At first, as was anticipated, there was some discrimination against the new coins, particularly in the interior of the country. From some sections reports were received that Chinese traders would not receive the new coins in business transactions except at a discount varying from 20 to 40 per cent, and that they were offering as high 5 per cent premium in the new coin for the old. The educational campaign, however, carried on by the Government and by the banks, coupled with the fact that the new silver coins were readily interchangeable at government treasuries throughout the Islands for silver certificates and nickel and copper coins, with which the people were familiar, soon broke down all discrimination, and by October 15, 1907, the new coin was "accepted without question in every part of the Islands, and no reports or complaints have been received for the past two months as to discounting, and so far as can be ascertained no premium is now paid for the old coin."¹

Incidental to the work of improving the Philippine coinage system by the recoinage, the Government realized a very substantial profit upon the operation. The new pesos contain but 66 per cent as much pure silver as the old, and the new subsidiary silver coins but 62 per cent. If all the old coins were recoined into coins of the same denominations, there would result a gross profit of about P17,450,000; provided of course there were need of the additional coins for monetary purposes, as appears to have been the case.² If one assumes that P2,000,000 of the old coins will not appear for recoinage, and that all the expenses incident to the withdrawal of the old

¹ *Ibid.*, pp. 68-69.

² The amount of Philippine currency in circulation in the Islands increased from P20,030,411, June 30, 1906, to P 48,754,697, June 30, 1910. Annual Report of the Treasurer of the Philippine Islands, 1910, p. 36.

money from circulation and its recoinage amount to 8 per cent — a very liberal allowance — he arrives at P12,500,000 as the approximate net profits of recoinage. This sum in itself is sufficient to provide a gold reserve of about 25 per cent for the entire Philippine circulation — a reserve adequate for all probable demands.

The Straits Settlements

Contemporaneous with the work of establishing the gold exchange standard in the Philippines, a currency reform looking toward the gold standard was being effected in the neighboring British Colony of the Straits Settlements. This currency reform *from the beginning*, however, unlike that of the Philippines, was greatly influenced by the silver market. The history of this reform down to the summer of 1906 has been given elsewhere,¹ and only a very brief summary will be required here.

The plan of reform adopted in the spring of 1903 “provided for the recoinage of the British and Mexican dollars then circulating in the Malay peninsula into new Straits dollars of the same weight and fineness as the British dollar (*i. e.*, four hundred and sixteen grains .900 fine), and for the subsequent raising of the value of these new dollars to an unannounced gold par by means of limiting the supply, in accordance with the principle by which India raised the gold value of the rupee.”²

The reason for not announcing in advance the gold par to be adopted was the strong upward tendency

¹ E. W. Kemmerer, *A Gold Standard for the Straits Settlements*, I and II, in *Political Science Quarterly*, xix (1904), pp. 636-649; xxi (1906), pp. 662-698.

² *Ibid.*, II, p. 663.

in the price of silver. The British authorities feared that if the gold par should be announced in advance, further rises in the price of silver might carry the dollar above the bullion par and necessitate either an entire recoinage or the adoption of a new gold par. It was decided, therefore, to adopt a permanent weight and fineness for the dollar, and to adjust the gold par of exchange, *i. e.*, unit of value, in accordance with the demands of the price of silver.¹ The great advance in silver in 1904 and 1905 soon made it evident that a two shillings par which had generally been expected, and which it is now known the Government had contemplated, would be out of the question, and that a substantially higher par must be adopted. This situation naturally led to a great amount of speculation for a rise in exchange. One large foreign banking house undertook to corner the supply of dollars, which was absolutely limited, and to a considerable extent succeeded, realizing great profits upon its speculations.

The excitement of the money market became so intense by the latter part of January, 1906, that the Government was forced to relieve the situation by declaring the gold par earlier than it had intended; and on January 29th a gold par of 28*d.* was announced. At this rate the Currency Commissioners were authorized to issue government notes in exchange for gold received by them at Singapore. Since then Singapore exchange has always stood in the neighborhood of 28*d.*²

The new Straits dollar at a gold value of 28*d.* had a bullion par of 33 $\frac{3}{4}$ *d.* On January 29, 1906, when

¹ For a criticism of the plan of considering the weight and fineness of the dollar the unalterable thing, and the unit of value the alterable one, instead of the reverse, cf. *Ibid.*, II, pp. 683, ff.

² Cf. Fraser and Company's Exchange Circulars (published at approximately weekly intervals and bound into annual volumes), Singapore, 1906-10.

the 28*d.* gold par was announced, the London price of prompt silver was 30*1*³/₈*d.*, thus giving the dollar a margin above bullion par of about ten per cent. By October, 1906, however, silver reached 32*1*³/₈*d.*, which was within two per cent of bullion par,¹ and the new coins were therefore facing the danger of the melting pot. Something had to be done promptly to protect them. The Government might have met the difficulty by still further raising the gold par; since in fixing the 28*d.* par it had expressly reserved the right to raise the gold par still higher if future advances in the price of silver should make such a course desirable. Previous experiences in raising the value of the dollar, however, had been too unfortunate to justify a continuation of this policy. The Government accordingly adopted a different and wiser course.

Let us first consider secondary measures for meeting the situation, and then the principal one, *i. e.*, re-coinage.

The first step, which was taken as early as February 13, 1906, was to again put into operation the order of October 2, 1903, prohibiting the exportation of the new dollars.² Such a measure in an *entrepôt* of foreign trade like the Straits Settlements, with a small customs service, would be very difficult to enforce if the silver value of the dollar should rise appreciably above bullion par, and was consequently not relied upon as an important factor in the solution of the problem.

The second step was to extend to other money the quality of unlimited legal tender. British sovereigns

¹ The Acting Treasurer estimated that the melting and shipping point was 1¹/₈ per cent above the bullion par; this he considered sufficient to cover "cost of transport (freight and insurance) to the purchaser, interest, and the cost of melting and refining to standard bars." Straits Settlements Financial Report and Statements for the year 1906, pp. 10-11.

² Cf. E. W. Kemmerer, *A Gold Standard for the Straits Settlements*, II, p. 664 and note 3. *Op. cit.*

were made unlimited legal tender¹ and payable in the redemption of government notes at the rate of 28*d.* to the dollar after November 23, 1906. This action was taken "mainly with the object of enabling the Currency Commissioners to prevent any drain on the silver reserve, of which the greater part was being remitted to England for recoinage."² Fifty cent pieces were made unlimited legal tender, instead of legal tender only to the amount of two dollars as formerly.³ Being unlimited legal tender they might be paid out by the Government in redemption of its currency notes.⁴ It has been observed that the fifty cent piece is a very popular coin in oriental countries. It has a gold value nearer to the standard monetary unit of most European countries than the dollar, and is better adapted to the needs of poor countries than the more customary oriental unit of about twice its value. Inasmuch as two fifty cent pieces contained about 10½ per cent less pure silver⁵ than the dollar, they would circulate until silver rose proportionately above the melting point of the dollar. Further, currency notes of the denomination of one dollar were printed and put into circulation. They were made unlimited legal tender, and proved very popular.⁶

¹ Cf. Order of King in Council dated October 22, 1906, and order of Governor-General of the Straits Settlements dated November 20, 1906. Thirty-seventh Annual Report of the Deputy Master and Comptroller of the Mint, 1906, pp. 104-105.

² Straits Settlements Annual Report, 1906, p. 6.

³ An order to this effect was issued by the Governor-General November 23, 1906, under authority of an Order of King in Council dated October 22, 1906.

⁴ Ordinance xxvi of 1906, amending sec. 4, par. 3, of "The Currency Note Ordinance, 1890."

⁵ They contained 419 grains of silver .800 fine to the dollar.

⁶ Straits Settlements Annual Report, 1906, p. 6.

Recoinage

The fourth and most important step was that of recoinage. A reduction in the bullion value of the coins could obviously be brought about by (1) a reduction in fineness of the coins, leaving the weight and size unchanged, (2) a reduction in the weight, leaving the fineness unchanged, or (3) a reduction in both weight and fineness — the plan adopted by the Philippines. One of the chief advantages of the first plan was the fact that the size of the coins would be unchanged and the appearance only slightly altered and, as a consequence, the difficulty of bringing the new coins into ready acceptability by the public would be minimized. Against this plan was the obvious objection that a reduction in fineness from .900 to .800 reduced the bullion value of the coins by only 11.1 per cent, and afforded too small a margin of safety in view of the condition and prospects of the silver market. A reduction in the fineness of the dollar much below .800 was metallurgically undesirable. The second and third plan made possible a sufficient reduction in the bullion value of the coins to provide any margin of safety desired, but only at the expense of endangering the acceptability of the coins.

It appears that the Government wavered between the first and second plans. In October, 1906, it decided merely to reduce the fineness of the dollar from .900 to .800, leaving the weight unchanged.¹ For some reason, probably the great advance in the price of silver in October and November of 1906, the Government changed its plan and decided upon a 25 per cent

¹ An order of the King in Council dated October 22, 1906, provided that .800 should be substituted for .900 as the fineness of the dollars coined after such date as may be fixed by the Governor.

reduction in the weight of the dollar, leaving the fineness unchanged; and a $25\frac{1}{2}$ per cent reduction in the weight of the fifty cent piece, raising the fineness from .800 to .900.¹ An order of the King in Council, dated February 11, 1907,² authorized the Governor to fix by proclamation the weight of the new dollar at three hundred and twelve grains .900 fine, and that of the fifty cent piece at one hundred and fifty-six grains .900 fine.³ On March 4, 1907, Governor Anderson issued two proclamations⁴ providing that the authorized changes in the dollar and the fifty cent piece should go into effect at once. These changes raised the bullion par of the dollar from a London price of silver of $33\frac{2}{3}d.$ to one of $44\frac{1}{2}d.$ and that of the half dollar from $37\frac{2}{3}d.$ to $44\frac{1}{2}d.$ The new bullion par gives a gold ratio of 21.3 to 1, the same as that of the recoined Philippine peso, a ratio lower than that of either India or Japan.

As soon as the recoinage ordinance was issued, measures were taken for beginning the work. Large quantities of coin on hand in the currency note reserve were shipped at once for recoinage, and other coins were shipped as rapidly as they could be conveniently withdrawn from circulation, the note reserve being used as a continuing fund to facilitate the operation. During the fiscal year 1907, \$10,767,500 of the new

¹ "Both the Chinese Advisory Board and the Chinese Chambers of Commerce were strongly against any reduction in the fineness of the dollar. . . ." *Straits Settlements Financial Report and Statements for the year 1906*, p. 12.

² Cf. *Thirty-seventh Annual Report of the Deputy Master and Comptroller of the Mint*, 1906, pp. 106-108.

³ This order in council also declared that ". . . the Governor of the Colony may at any time, with the approval of the Treasury and a Secretary of State, issue a proclamation fixing for the subsidiary coins below the denomination of fifty-cents . . . a new standard of weight or millesimal fineness or both. . . ." *Ibid.*, pp. 106-107.

⁴ These are given in *Report of the Director of the United States Mint*, 1907, pp. 197-199.

coins were received. "They were not very popular at first and at the end of the year, \$5,150,000 of them were remaining in the hands of the Currency Commissioners. . . . One dollar notes are to some extent taking the place of the dollar."¹

By the end of the year 1909, the recoinage of dollars was completed, the total amount received being \$19,006,872, "showing a surplus of \$4,751,898 over the amount sent for reminting,"² and yielding a gross profit of 33½ per cent. The increased supply of coins which would have resulted from the recoinage of all the old dollars would have been much larger than the needs of the country; and accordingly \$3,000,000 were sold as bullion in 1907 (in addition to \$1,000,000 of surplus subsidiary silver including \$106,000 in fifty cent pieces),³ and \$12,778,213 in 1910. From the 1910 sales \$9,363,070 was realized, showing a loss from face value of about 27 per cent. The net profits upon the recoinage have been turned into the Gold Standard Reserve Fund (created by sec. 73 of Ordinance I of 1906) and the Straits have definitely adopted the gold exchange standard, selling sterling exchange on demand in Singapore on London and dollar exchange in London upon Singapore.⁴

The developments which led the British authorities to adopt the gold exchange standard for the Straits Settlements after having been opposed to it at first,⁵ and the mechanism of the gold exchange standard

¹ Straits Settlements Financial Report and Statements for the year 1907, p. 7.

² *Ibid.*, 1909, p. 6.

³ *Ibid.*, 1907, p. 8.

⁴ Cf. Currency Note Ordinance (xxvii of 1908) Amendment Secs. 10-12. Exchange operations for maintaining the gold parity of the currency were begun by the Government as early as 1906. Straits Settlements Financial Report and Statements for the year 1906, p. 10.

⁵ In 1906 the writer criticised the British authorities for refusing to adopt the gold exchange standard in the Straits Settlements. Cf. *A Gold Standard for the Straits Settlements*, II, pp. 678-681.

as adopted, offer material for an interesting chapter in monetary history. Such a chapter, however, does not fall within the province of this paper. It will suffice to observe that the 1906-07 rise in the price of silver which resulted in the recoinage of Straits dollars and made possible the accumulation of a substantial gold reserve, was to a considerable degree responsible for the effective inauguration of the gold exchange standard.

Japan

Japan, unlike the other countries being studied, had completed her currency reform some years before, having been upon a gold standard since 1897.¹ As in these other countries, however, the ratio of silver coins with gold in Japan was high. The only silver coins authorized by the gold standard act of 1897 were the pieces of fifty sen, twenty sen, and ten sen, containing 332.75 grains of pure silver to the yen, and being .800 fine. Inasmuch as the new unit of value was the gold yen² containing 11.574 grains of pure gold (representing approximately the value of the silver standard yen at that time in circulation) the legal ratio of gold to silver was 28.75 to 1, and the bullion par of the silver coins was approximately 32½*d.* per ounce for British standard silver. For March, 1897, the month in which the Japanese gold standard act was passed, the average price of silver was 29*d.*, and the tendency was strongly downward. Under these circumstances the margin of 11.3 per cent in March, 1897, seemed a safe one.

¹ An historical sketch of Japanese currency will be found in the Report on the Adoption of the Gold Standard in Japan. By Count Matsukata Masayoshi, Tokio, 1899, ch. 1-iv.

² The only gold coins actually coined under the new law were coins of twenty, ten, and five yen.

At the date of the passage of the gold standard act "the scarcity of subsidiary money was being felt everywhere."¹ This fact, coupled with (1) the demands of a rapidly growing trade, (2) the provision of law for the withdrawal from circulation of the 66,000,000 of one yen convertible notes of the Bank of Japan, (3) and the withdrawal of the 39,320,000 yen (estimated) of one yen silver pieces, resulted in a very large coinage of silver subsidiary money during the period 1897-1905, — a coinage amounting in all to over 51,000,000 yen.² In 1905, there were in circulation in the form of subsidiary silver pieces over 82,000,000 yen.³

Japan was one of the first countries to recoin her silver money in response to the rise in the price of silver. The "high" price of silver for February, 1906, gave Japanese silver coins a margin of only about six per cent below bullion par. To Japan the situation was especially serious because silver coins represented such an important part of the country's circulating medium, and because all silver coins (except the five sen piece of the old coinage) were of proportionate weights and the same fineness, so that pieces of fifty, twenty, and ten sen would all go to the melting pot at about ⁴ the same time.

A recoinage law was passed April 6, 1906, to take effect June 1st. It reduced the fine silver content of the fifty sen, twenty sen, and ten sen ⁵ pieces from

¹ Matsukata Masayoshi, Report on the Adoption of the Gold Standard in Japan, p. 230. Op. cit.

² Seventh Financial and Economic Annual of Japan, 1907, p. 145.

³ Ibid., p. 144.

⁴ The degree of abrasion would obviously be different for different denominations, inasmuch as the smaller coins offer a greater surface in proportion to their bulk than the larger ones, and are also liable to receive harder usage.

⁵ The fineness of the fifty sen and twenty sen pieces was continued at .800; that of the ten sen piece was reduced to .720 to avoid unduly reducing the size of the coin.

332.75 grains (to the yen) to 250 grains, a reduction of 25 per cent. By this change the bullion par was raised from 32½*d.* per ounce to 43½*d.*, and the ratio with gold reduced from 28.75 to 1 to 21.6 to 1. This places the Japanese ratio also below that of India, which is 21.9 to 1. Recoinage of the fifty sen and twenty sen pieces was begun promptly, and over 12,000,000 yen in coins of these denominations were minted during the fiscal year ending March 31, 1907. A reduction of 25 per cent in the fine silver content of the 82,000,000 yen of subsidiary coins in circulation in 1906 would mean a very substantial profit to the Government, even after due allowance is made for all expenses incident to the recoinage. More recent figures upon the recoinage are not yet available.

Mexico

The last country to be considered is Mexico. While our southern neighbor was on the silver standard a pronounced rise in the gold price of silver was frequently a signal for hard times because of the depressing influence of a rise in the gold exchanges upon Mexico's export trade. The great rise in the price of silver during the period 1905-07, however, proved a boon to Mexico. It raised her quickly from a silver standard to a gold standard with an abundance of gold; enabling her to escape the long and painful process by which India raised the gold value of the rupee; it brought exceptional prosperity to the class which it was feared would suffer most from the closing of the mints to the free coinage of silver, *i. e.*, those engaged in the production of silver; it gave Mexico a substantial gold reserve; and finally, as the Mexican economist, Professor Enrique Martinez Sobral, has said, it enabled Mexico

to effect its monetary reform, in large part at least, at the expense of foreign countries.¹

After a thoro study of the subject of monetary reform in Mexico and a masterly report² by the Mexican Monetary Commission in 1903, a plan for placing Mexico upon the gold standard was adopted in the decree of March 25, 1905, issued under authority of the enabling act of December 9, 1904.³

The plan (which was somewhat similar to that adopted by India in 1893) called for the raising of the dollar, by "relative contraction" of the currency, to the value of seventy-five centigrams of pure gold (the equivalent of 49.8 cents United States money) and for the ultimate maintenance of a fixed par with gold by means of the gold exchange standard. The existing Mexican dollar was to be continued in circulation as unlimited legal tender money, but its free coinage for circulation in Mexico was to be discontinued. Upon this basis the ratio with gold would be 32.58 to 1. The existing subsidiary coins, which had been of the same fineness as the Mexican dollar and of proportionate weights, were to be withdrawn from circulation and for them was to be substituted new subsidiary coins of lighter weights (twenty-five grams to the dollar) and of lower fineness (.800 fine instead

¹ Enrique Martínez Sobral, *La Reforma Monetaria*, 2d ed. Mexico: Tipografía de la Oficina Impresora de Estampillas, 1910, p. 196.

² The entire report, which is in Spanish, is published in six quarto volumes. It is a mine of information upon monetary subjects not only for Mexico but for other countries.

The Commission's final recommendations and reports, an explanatory statement by the Minister of Finance, and a bill sent to the Mexican Congress, are published in English in the Report of the Commission on International Exchange, on Gold Standard in International Trade, 1904, pp. 334-450.

³ The laws and decrees relative to the reform down to July 10, 1906, are published in a public document entitled *Leyes y Disposiciones relativas a la Reforma Monetaria*, Mexico, 1906.

of .9027).¹ This reduction of the fine silver content of subsidiary coins to 18.2 per cent less than that of the dollar — a reduction made primarily to prevent the coins from being exported² — later proved to be a measure of great importance in carrying out the currency reform.³

The Mexican currency reform was inaugurated later than those of the Philippines and the Straits Settlements, and the uncertainty of the silver market seems to have been more fully appreciated by the Mexican Government than by the others. Frequent references are found in the Monetary Commission's Report to the danger that silver may rise to such an extent as to put the silver coins in danger of exportation or of the melting pot, and a plan of action was early decided upon to meet such a contingency. With reference to the question as to what ratio between gold and silver should be adopted for Mexico's new currency, the Commission said in its final report:⁴

The fourth sub-committee, taking as a base the average gold price of the white metal from 1893 to 1902, has urged, with abundance of sound reasons, the expedience of adopting a ratio that shall not be less than 1 to 36 nor more than 1 to 32. This view was combatted by no one except Mr. José de Landero y Cos, who expressed the belief that even the latter of the two ratios did not leave a sufficient margin to insure the maintenance of the new coin at a higher value than its mere bullion value, because the rise of silver during the closing months of the present year, a rise characterized by unaccustomed firmness, showed indications not only of being sustained, but even of being accentuated, until

¹ Act of March 25, 1905, ch. 1, art. 5. *Ibid.*, pp. 45-46.

² Cf. Report of Joaquín D. Casasús and M. Fernandes Leal to fifth sub-committee of the Mexican Monetary Commission; also the recommendations of the Commission itself upon this subject, *Comisión Monetaria, Actas de las Juntas Generales y Documentos a ellas Anexos*, Mexico, 1904, pp. 163-200.

³ *Infra*, p. 267.

⁴ Quoted from English translation in Report of Commission on International Exchange, on Gold Standard in International Trade, 1904, p. 410.

the relationship between gold and silver should approach, or perhaps even attain, the ratio of 1 to 32. . . . Considering . . . that the enhanced value ascribed to the new coin ought not greatly to exceed the bullion value of that coin, based on the average of the last ten years, . . . we resolved to adopt the formula . . . by virtue of which the gold value of the new dollar will be fixed on the basis of the average gold price of the Mexican dollar in the last ten years plus an addition not to exceed ten per cent.

Referring to the question as to what ought to be done in case, subsequently to the adoption of the monetary reform, the gold price of silver were to rise to a point at which the bullion value of the new dollar should become equal to, or even exceed, legal parity, the Commission said: ¹

Such a contingency cannot be regarded as impossible if one considers the surprises which the constant fluctuations of silver have had in store even for the most farseeing and well informed persons. To meet such a contingency there would only be two courses: Either to alter . . . the legal parity adopted when the reform was enacted, or to go, fully and openly, on the gold basis with gold in circulation; and inasmuch as the drawbacks and disastrous consequences of the former course were obvious, the latter was adopted without hesitation or difference of opinion, and in consequence was embodied in the twelfth base of the plan of reform.

This base recommends that under such a contingency steps should be immediately taken "to demonetize the silver dollar and to introduce the gold standard, with free coinage and use of the yellow metal as a medium of circulation." ²

About eleven months later Finance Minister Limantour in submitting to Congress the draft of a bill for stabilizing the gold value of the Mexican dollar said: ³

For months past the exchange value of our dollar on New York has been 46 cents to 47 cents gold, in spite of the fact that the price of silver in bars has been relatively lower. As, however,

¹ *Ibid.*, p. 417.

² *Ibid.*, p. 422.

³ *Ibid.*, p. 443.

the tendency of the white metal does not afford any prospect of considerable improvement (for neither is production likely to be curtailed nor the demand suddenly to increase to any extent) it would seem, as far as foresight can go in these difficult and obscure problems, that the margin between the commercial value of the metal contained in the dollar and the gold value which it is intended to give to our monetary unit, is sufficiently broad to dispel any fear, at any rate for some time to come, of the serious inconvenience that would be occasioned by the rise in the price of silver above legal parity, and yet is not so broad as to inspire doubt as to the ability of the silver dollar to attain parity with gold without serious difficulty by the policy of relative contraction of the currency.

As a special precaution, however, the bill proposed by the Finance Minister, and which later became law,¹ gave the Executive authority "to permit the legal circulation, for a limited period, of the gold coin of other nations" and to fix their value in terms of Mexican coin, in case the price of silver in London should go above 28½*d.* per ounce — the legal parity was 28½*¢*. It also gave the Executive power "to modify civil and mercantile legislation in all matters connected with prestations and payments of money."

How incorrect the prophesies of Finance Minister Limantour were will be seen from the figures with reference to silver on the following page.

As early as August, 1905, silver reached a point within 0.6 per cent of bullion par; on October 21st it reached bullion par, and for the month of November it averaged 1.9 per cent above bullion par, reaching in that month a maximum of 4.8 per cent above. For every month during 1906 and every month during 1907 down to October the price of silver averaged well above bullion par, the average margin reaching 13 per cent for November, 1906, and the maximum margin reaching 14.5 per cent for the same month.

¹ Law of December 9, 1904. *Leyes y Disposiciones, etc.*, pp. 39-41. Op. cit.

PERCENTAGE MARGIN OF HIGHEST AND AVERAGE PRICE OF SILVER
IN LONDON ABOVE (OR BELOW) BULLION PAR OF MEXICAN
DOLLAR

Month	1905 Highest	1905 Average	1906 Highest	1906 Average	1907 Highest	1907 Average
January	1.9*	3.4*	4.6	4.1	12.2	9.9
February	2.1*	3.0*	6.5	5.3	11.1	10.1
March	4.2*	7.4*	5.2	3.3	10.9	8.2
April	7.9*	9.6*	5.7	3.6	5.5	4.7
May	5.6*	7.8*	8.5	7.1	7.6	5.4
June	6.2*	6.9*	7.6	4.5	7.4	6.8
July	5.6*	6.2*	5.2	4.2	10.4	8.5
August	0.6*	3.2*	7.0	5.5	11.5	9.5
September . . .	0.6*	1.4*	9.8	8.9	9.1	8.1
October	0.0	1.0*	12.6	11.2	6.8	0.2*
November . . .	4.8	1.9	14.5	13.0	3.0*	6.1*
December . . .	4.8	3.7	12.0	10.7	7.5*	9.4*
Year	4.8	3.8*	14.5	6.8	12.2	4.9

* Below.

With the high profits realizable from exporting the dollar which such figures suggest, one would expect bullion dealers everywhere to collect dollars and to export them in large quantities. To prevent this, the Commission on Exchange and Money¹ (Comision de Cambios y Moneda) wisely undertook to keep in its own control the matter of exporting dollars. Its problem and how it was solved may best be told in the words of its own admirable report:²

¹ This is an honorary commission consisting of ten men including the Secretary of the Treasury. It was created by the act of April 3, 1905, and given wide powers with reference to the administration of currency matters. Among its principal duties was the administration of the "Regulator Fund" (Fondo Regulator de la Circulation Monetaria), constituted by the act of March 25, 1905, with an initial appropriation of ten million dollars the fundamental object of which was "to facilitate the adaptation of the monetary circulation, with reference to the quantity of money, to the requirements of a stable exchange with foreign countries." *Leyes y Disposiciones. etc.*, pp. 52 ff., and 93-105. Op. cit.

² Memoria de la Comision de Cambios y Moneda, que Comprende el Periodo Transcurrido de lo de Mayo de 1905, a 30 de Junio de 1909. Mexico, 1909, pp. 12-14.

The Commission immediately decided to take advantage of such a favorable conjuncture to undertake the task of demonetizing the Mexican peso, converting into gold the silver which it contained. . . . In order to accomplish this end it would be necessary to proceed very rapidly, since it was impossible to predict how long the advance in silver would continue; and at the same time with great caution, since it is known that the silver market is exceedingly sensitive, and the offer of silver even by a very small amount in excess of the demands of the day is sufficient to depress the market to a considerable degree. Without precipitation, therefore, but with inviolable firmness, following the fluctuations of the market closely and with anxious interest, the Commission began to realize upon the pesos which it held in the Regulator Fund. When it had disposed of these at remunerative prices, which happened soon, it made an arrangement with the banks according to which they undertook to turn over to the Commission their cash balances of pesos upon condition that they should realize upon them in London without loss, notwithstanding the great diversity of places in which the money was gathered.

It was the invariable rule of the Commission in the numerous operations of this kind which it undertook, to turn over all or nearly all the margin of profit which it realized to the banks which furnished the pesos for exportation, since it appeared that by proceeding in this way it not only complied with the demands of justice but best accomplished the purpose for which the Commission was created. That purpose was not to secure profit, but to contribute to the establishment and maintenance of the monetary circulation of the Republic upon sound and stable bases.

Another object pursued at the same time by the Commission in its conduct of this affair was to prevent banks and individuals from becoming interested in undertaking directly operations for the exportation of pesos. To this end the services of the Commission were made essentially gratuitous. Thus the Commission prevented disturbances in the silver market which without doubt would have taken place if the offerings of Mexico had been multiplied in a disorderly manner and had not been turned into one channel, attention always being given to the circumstances of the moment. The Commission furthermore enjoyed facilities for conducting the business quickly, effectively, and cheaply, which were not available to all exporters.

In this manner the Commission exported from November 17, 1905, to September 24, 1907, the important sum of \$60,727,500 from which it was able to realize upon all but \$2,710,000.¹

¹ Before this latter sum could be realised upon, the price of silver declined so far that it became desirable for the Commission to have the coins returned to Mexico.

Notwithstanding all the efforts, which have been alluded to, for conserving the Commission's control over the exportation of pesos, it continually feared that a time would arrive when its control would disappear, because it was certain that if the high price of silver should persist, the spirit of gain and of speculation would induce many to undertake operations on their own account. The danger then would consist not only in the disturbances which would thereby be caused in the market for the purchase of silver, but also in the rapid retirement from circulation in the Republic of large sums of pesos, thus producing quickly a dangerous contraction in the currency . . . since individuals would not find it to their interest to follow the invariable practice of the Commission of returning to the circulation in the form of gold the equivalent of the silver coins withdrawn.

When in October and November, 1906, the price of silver rose to an average of 11.2 per cent and 13.0 per cent, respectively, above bullion par, the exportation of silver pesos became so profitable "that commercial people of every class and persons not engaged in commerce undertook their exportation."¹ Figures cited by the Commission tend to show that nearly sixteen million pesos were exported by private parties prior to November 19, 1906.²

Now we find Mexico's currency problem reversed. It is no longer the problem of creating a scarcity of money so as to raise the value of the peso to the gold par of seventy-five centigrams of pure gold, but the problem of preventing a currency scarcity and of keeping the peso down to the gold par for purposes of circulation. On every side fears were expressed lest the country would be denuded of its currency supply. The situation was made more serious by the facts that (1) at the time the pesos were being exported subsidiary coins were being withdrawn from circulation and recoinage, also minor coins of nickel and copper;

¹ Werner Hegemann, *Mexikos Übergang sur Goldwährung*, Stuttgart, J. G. Cotta'sche Buchh. Nachf., 1908, pp. 173-174.

² *Memoria de la Comision*, etc., p. 15. Op. cit.

(2) there were in force strict limitations upon additional issues of bank notes which had been imposed to prevent an increase of bank note circulation from interfering with the "relative contraction of the currency."¹

How was the emergency met? It will be recalled that Mexico's currency legislation placed very wide discretionary powers in the hands of the administration, and that these powers were placed largely in the Commission on Exchange and Money, subject to the approval of the Finance Minister. This wide discretion now became very useful and was wisely exercised.

On November 19, 1906, a ten per cent duty was imposed upon the face value of silver coins exported; with the proviso that exporters would be exempted from the tax if within thirty days of the date of shipment they should turn over to the Commission for gratuitous coinage gold bars or foreign gold coins equivalent in value at the legal parity to the pesos exported. There was exported, in accordance with the provisions of this law, down to the close of the fiscal year 1907-08, P8,264,447,² which added to the net exportations made by the Commission for which gold was returned, total over P66,000,000.³

The next step was to make every effort to expedite the coinage of all new kinds of Mexican money, gold, silver, nickel, and copper. To this end not only was the Mexican mint worked to its full capacity, but the mints of other countries⁴ were also employed under

¹ Sobral, *La Reforma Monetaria*, etc., p. 179. Op. cit.

² *Memoria*, etc., p. 14.

³ On June 30, 1909, it was officially estimated that there was still in Mexico about twenty million of the old silver pesos, out of a total metallic monetary stock of 147,-950,242 pesos, *ibid.*, p. 17.

⁴ The foreign mints employed were those of Birmingham, England; Philadelphia (which coined 30,000,000 pesos of gold coin), New Orleans, Denver, and San Francisco. Detailed figures for the coinage will be found in *Memoria*, etc., Appendix No. 7.

the supervision of representatives of the Mexican Government. The amount coined at foreign mints was *P*41,610,123 and at the Mexican mint was 86,345,647, making a total coinage down to June 30, 1909, of 127,955,770 and representing 86.5 per cent of the total metallic money of the country. To take the place of the pesos which were being exported the Government coined a large number of fifty cent pieces,¹ which were highly popular coins and not of sufficient bullion value to be exportable.

Two measures adopted in 1905, before the rise in the price of silver had resulted in the exportation of much silver coin, proved helpful in the effort to provide promptly an adequate gold circulation.

The first was an act to encourage the keeping of domestically produced gold at home. Mexico is an important gold producing country (ranking only after South Africa, the United States, and Russia in 1908), and fortunately her product was increasing at the time the monetary reform was being effected.² An act of June 19, 1905, reduced the stamp tax upon the value of bars of gold (as well as of silver) refined, to a fineness of .999 or more, from 2½ per cent to 1½ per cent.³ It is interesting to note that domestic gold to the value of over fifty-two million pesos was purchased by the Commission in the form of bars down to the close of the fiscal year 1909.⁴

The second measure was the adoption of the temporary expedient of issuing gold certificates against gold bullion in process of coinage. These certificates

¹ Out of a total new silver coinage of *P*42,728,543, *P*26,830,619, or 62.8 per cent consisted of fifty cent pieces. *Idem*.

² According to the estimates of the Director of the United States Mint Mexico's annual gold product in terms of United States money at this time was as follows: 1905, \$16,107,100; 1906, \$18,534,700; 1907, \$18,681,100; and 1908, \$22,371,200.

³ Cf. *Memoria*, etc., p. 20.

⁴ *Ibid.*, Appendix 9.

were authorized in the decree of December 22, 1905,¹ and their principal characteristics are well summarized by Sobral² as follows:—

The certificates were issuable "in exchange for gold bars or foreign gold coin received for coinage, or in exchange for silver pesos received for sale the proceeds of which were to be turned into gold. They were payable to bearer at sight but at the request of the interested parties might be made payable to order. Certificates were issued in denominations of a thousand pesos or multiples thereof, except when they were made payable to order; but in no case in denominations of less than a thousand pesos. They were redeemable on demand, the Commission having the option to redeem in Mexican gold coin or in foreign gold coin;³ and the Commission kept a deposit in gold bars as a guaranty fund. Banks were authorized to count certificates as part of their reserves." Altho legally free coinage of gold did not exist,⁴ this issue of certificates in exchange for gold bullion amounted to nearly the same thing; and as a matter of fact all gold presented was freely coined by the Commission.⁵

This was the mechanism by which the great but temporary rise in the price of silver during 1905–07 carried Mexico quickly to the gold standard, yielded

¹ "In accordance with the wording of the decree the Commission must at all times keep in the National Bank gold to the amount of the gold certificates issued. This it could do by means of the money in the Regulator Fund. Doubtless the Commission felt secure against a crisis, since the amount of the certificates issued was already held in the form of United States gold coin, and the Executive had authority from the gold standard act to make foreign gold money legal tender at any time. For national reasons it was decided not to adopt such a course unless necessary. (Cf. Memoria, etc., p. 16.) In case of the sudden presentation of gold certificates, however, redemption might be made in gold coin of the neighboring Republic, which enjoyed a good reputation in Mexico, and which, if made a legal means of payment, could be substituted for the new Mexican peso, since the American dollar was worth almost exactly two Mexican pesos." Werner Hegemann, *Mexikos Übergang zur Goldwährung*, pp. 172–173. Op. cit.

² In this respect as in most others the Executive was given wide discretion—much wider than would be politically possible in the United States. The act of March 25, 1905, (ch. 11, art. 9) declared: "The privilege of coining money belongs exclusively to the Executive of the Union, who shall exercise it in conformity to law and public interest, coining such quantities as they require. The right of individuals of bringing gold and silver to the mints for coinage is discontinued."

³ Sobral, p. 192.

⁴ *Leyes y Disposiciones*, etc., pp. 177–179.

⁵ *La Reforma Monetaria*, etc., pp. 191–192. Op. cit.

a net profit of *P*8,000,000,¹ solved the vexed problem of a gold reserve, eliminated the necessity of the gold exchange standard, and transferred the country's stock of metallic money in a little over three years' time from one consisting almost entirely of silver coins to one in which *P*83,000,000² out of a total of *P*148,000,000 was gold and in which *P*128,000,000 represented new coins.³

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¹ *Memoria, etc.*, Ap. p. 11.

² *Ibid.*, Ap. p. 14-16.

³ *Ibid.*, Ap. p. 7.

THE BRITISH NATIONAL INSURANCE ACT ¹

SUMMARY

I. General significance, 275. — II. Sickness and Disablement Insurance, 280. — Number and kind of persons insured, 281. — Tripartite source of contributions, 284. — Character of workmen's contribution, 285. — The kinds of benefit, 287. — Administration by "approved societies," 289. — "Deposit contributors," 294. — Insurance Committees and the doctor situation, 295. — National administration, 297. — III. Unemployment Insurance, 298. — The innovation of compulsion, 299. — Character of contributions, 300. — Administration, 301. — Constructive arrangements, 302. — Trade unions and voluntary provisions, 304. — IV. Ulterior effects, 305. — Economy and rising costs, 305. — Is an increasing sickness rate a sign of inefficiency? 307. — Effect on births, 309. — The minimum wage principle and its effects, 310. — The moral potency of risk and insurance, 311.

I. GENERAL SIGNIFICANCE

PROBABLY no other act of social legislation yet passed by the British Parliament, except the act for compulsory education, has promised such general and far-reaching consequences as the act of December 16th last. No other act, except the cognate Old Age Pensions Act of 1908, has provided so prodigally for a taxpayers' gift to the poor as a class. And no other recent act, except the still young Workmen's Compensation Act, has broken so widely into the contractual relations of employer and employee. To the act of 1911 the stride has been great from the days, a century ago, when output and industrial organization were held chiefly precious by the legislators and

¹ The bill and the act, and the bill as amended in the stages of its progress in Parliament, are published. Besides the other official papers referred to below, mention may be made of the "Copy of Memorandum explanatory of the Bill" and "Replies to letters addressed to the Chancellor of the Exchequer," 1911 (ed. 5733).

when the humble children's bill had to beg its way into enactment. In 1911 the safeguarding of industry has been sought only indirectly by insistence upon safeguarding the "working" classes.

Opposition to the bill at no time menaced its enactment. Little had greeted its introduction. For some reason the nation had lost fear, by 1911, that such an act as this, based on alien principles and proposing large changes, could really bring hurt. Yet the years are quickly counted since students of the British system of workmen's providence were telling the world that compulsory insurance was not necessary nor desired by the people. The reason for the apparently general change of mind may lie in the discovery that previous radical measures had not brought calamity. The struggle had been hardest to get the first reform, an experimental workmen's compensation act. So it had been in Germany: the first insurance bill was longest in finding favor; the quick acceptance of the second and third acts matches the rapid succession in England of the Old Age Pensions, Labor Exchanges, and National Insurance acts. A new social epoch appears to have been thus suddenly introduced in both countries.

Since the bill was not a party measure, opposition bore mainly on particulars. The press was generally favorable. An exception was the *Spectator*, which after recommending a year earlier¹ an act similar, as regards sickness, to the bill of Lloyd George, carried on a bitter campaign against its provisions. Socialist organs also, like the *New Age*, opposed the bill. In Parliament and generally, the socialists asked for a more liberal measure. The Labor Party supported the bill. On one or two occasions fierce attacks were

¹ May 21, 1910, p. 835.

made by Irish members, but without the concurrence of the Irish majority. The Conservatives were artful. Their attitude at the end (in connection with a "reasoned" amendment) gave them an outlet for saying in the future, if the bill was liked, that they had helped enact it; if it was not liked, that they had not favored its terms.¹

Mr. Lloyd George at first urged enactment by the summer session. That would have been over-hasty. Even in December critics urged that many changes had not been debated at all. The Chancellor's defence was that the guillotine is necessary for minor clauses, and that ample discussion had been devoted to principal matters.

As will appear below, the connection of Germany with the new act in England is far from incidental or nugatory. In introducing his bill on May 4th, Mr. Lloyd George thanked the German authorities for their aid and repeatedly referred to how a point was managed "in Germany." So evidently are many of the provisions of the scheme, respecting both sickness and unemployment, — the latter has no German counterpart — suggested by provisions of the German scheme that the English act becomes a tribute to the excellence of its prototype.² The real significance of the imitation is plainer when one considers the sensitive political relations of the two countries. France in a similar relation had, less than two years before, imitated the German old age law.

That a grave social situation needed correction in England the nation had for years been aware. For

¹ The position of the parties is clearly stated in the *Nation* (London) for October 21; pp. 117-118. Later changes of attitude were insignificant.

² Cf. the official papers: Copy of Memorandum on Sickness and Invalidity Insurance in Germany (ed. 5678) and Copy of Memorandum containing the opinions of various Authorities ["leading companies and firms"] in Germany, 1911 (ed. 5679).

more than two decades a long series of public and private writings described a newly important cause of poverty in unemployment. In 1885 and 1886 the reports of the Royal Commission on Depression of Trade and Industry; in 1891-94 the reports of the Royal Commission on Labor; in 1895 the Select Committee reports on Distress from Want of Employment; in 1904 the Board of Trade description of Fluctuations in Employment; the reports presently of the Distress Committees set up by the "Unemployed Workmen Act of 1905," heaping up evidence that that act scarcely touched the great problem; finally in 1909 the reports, majority and minority, of the Poor Law Commission of 1906, testifying in agreement to the seriousness of the problem, asking for labor exchanges and insurance, — all these were symptoms of concern. So too were the series of books by Hobson, Drage, Alden, Chapman, Dearle, Schloss, and — best of all — Beveridge, to name only a few.

The problem of sickness was older. But the number and activity of doctors, statistics of deaths and reported diseases, institutional treatment, and the insurance of friendly societies and trade unions had made its dimensions, or at least its importance, obvious. Government inquiry on the subject was more specialized — dealing with "physical deterioration," tuberculosis, etc. Yet the Poor Law Commission urged anew in 1909 the intimacy of the general connection of sickness and poverty.¹ The majority commissioners cited evidence, for example, that of 4000 poor consumptives, sixty per cent were poor because consumptive.² The first sanitary legislation in England for the prevention of disease had been obtained, be it noted in passing, by earlier poor law commissioners.

¹ Cf. majority report, pp. 235-302; minority, pp. 846-890.

² *Ibid.*, pp. 288-289.

It is worth while to examine the main provisions of the new act, to read them in the light of corresponding provisions in foreign acts, and finally, in the light of both, to consider some fundamental questions of principle. With details we are little concerned. The 87 clauses of the bill, much amended by Parliament and increased to 115 in the act — often on initiative of the Chancellor — multifariously make such adjustments and modifications in the interest of peculiar or minor circumstances as every country must make in social legislation.

Precedent is wanting for the provision by one act of the three kinds of insurance, sickness, invalidity, and unemployment. For twenty years Germany had been debating how to consolidate the machinery of her insurance systems; invalidity was a natural step between sickness and old age; but a union of the latter two appearing unnatural, the invalidity insurance was worked with that for old age. In England, however, provision for old age was not by an insurance system, so the sickness and invalidity insurance could be intimate parts of one system.¹ Certainly the detractors from the pension scheme must grant that it has here accomplished a service! Unemployment insurance, which many persons urged should be managed in a separate bill, could have only remoter relations with sickness insurance. Yet the differences of the English scheme from the schemes of other countries are essentially likenesses with the English sickness insurance. With justice the three sickness insurance systems

¹ "Inasmuch as under the Bill disablement benefit is a direct continuation of sickness benefit . . . no special organisation will be needed in order to test applications for the disablement allowance. Hence all the elaborate arrangements devised by German invalidity insurance legislation for receiving, examining, reporting and finally adjudicating upon such applications become superfluous, while at the same time expense is saved and procedure expedited." Copy of Memorandum on Sickness and Invalidity Insurance in Germany, 1911 (od. 5678), p. 2.

were reckoned members of a family and dubbed simply "National Insurance." In our analysis the provisions as to unemployment will be treated last, as they are by the act.

II. SICKNESS AND DISABLEMENT INSURANCE

Nowhere is there a parallel for the inclusiveness of membership of the English sickness insurance system. Interest in the German scheme has so naturally centered in the fact of compulsion that foreign students have not always appreciated the comparative narrowness of its application. In 1885, when the German system was first in working order, it insured a round ten per cent of the population; in 1909, twenty-one per cent, — 13,385,290 persons.¹ The British isles, with a population today equal to that of Germany in 1885, propose to insure by compulsion as many persons as are today insured in Germany; more exactly, over thirty per cent of the population — thirty-three per cent probably when the voluntary insurers are added. The actuaries calculated for Mr. Lloyd George that 9,217,000 men and 3,872,000 women, both of the ages 16 to 65, would come under the compulsory provisions of the bill.² To these 13,089,000 (compare the German figures above) must be added more than 800,000 men and women who the actuaries calculated would insure voluntarily.³ The total approaches fourteen millions. In Germany the number insured against invalidity was 15,444,300 in 1909, or about twenty-four per cent of the population.⁴

¹ See the interesting table of annual percentages in *Reichs-Arbeitsblatt*, January, 1911, p. 39.

² Report of the Actuaries in relation to the Scheme of Insurance against Sickness, etc., 1911 (ed. 5681), p. 9.

³ The original bill proposed to include also some 800,000 boys and girls under 16; a few of them are still eligible as voluntary insurers.

⁴ *Reichs-Arbeitsblatt*, *ibid.*, p. 45.

What character has the wider inclusiveness of the English system? The act applies to all "employment in the United Kingdom under any contract of service or apprenticeship, written or oral," whatever be the nature of the employer or the character of the payment. Special inclusion is made of outworkers ("persons to whom articles or materials are given out to be made up," etc.). Casual laborers, with quite insignificant exceptions, are included. Exception is made when employment is other than by way of manual labor if at the same time the rate of remuneration exceeds £160 a year. The other exceptions are trivial or occur for certain classes of persons equivalently provided for. Persons entitled to voluntary insurance are chiefly such as "are engaged in some regular occupation and are wholly or mainly dependent for their livelihood on the earnings . . . from that occupation," but the incomes of these independent work-people from all sources must not exceed £160 a year. Persons now older than 65 are excluded. By contrast the German act first particularized the selected industries to which its terms as to sickness should apply, and fixed at the low sum of 2000 marks the income limit for non-manual workers and voluntary insurers. Subsequent amendments (chiefly, 1892) did little more than permit extension of compulsory insurance by local statute to certain special groups. Only lately, by the codifying act of 1911, has general inclusion been made of agricultural and forestry workmen, casual laborers, domestic servants, and persons engaged in house industry. At the same time the income limit for special workers has been raised to 2500 marks. The invalidity provisions have not been notably changed. It is only in the future, therefore, that the German scheme will be nearly as inclusive

as the English. No thought of experiment inspired the Lloyd George act!

Protest against inclusion under the act came for only one or two groups of persons. They were the clerks whose salaries (under £160) had continued to be paid during absence for brief sickness and for whom fears were felt that employers would cease this custom. And they were the domestic servants. Till the very end of the term of the bill in Parliament, scarcely a word was breathed about the position of servants. Then prominent women began to epistolize the newspapers and for November 29th a public meeting was called at Albert Hall. Ten thousand attended, other thousands stood outside. A large majority were women, mostly servants, so the report tells. Resolutions were passed asking exemption of domestic servants from the demands of the act, on the ground that employers were now giving medical attention and comforts to sick servants.¹ Despite the spectacular suddenness of the episode, Mr. George succeeded in convincing Parliament that inclusion of the servants would be wise; a change from the bill provided only for additional benefits where servants already received the usual benefits.

Concerning any compulsory insurance system no more fundamental question can be asked than, How shall the cost be met? No country that has yet established a sickness insurance system has wholly absolved the workmen from a share in the burden. Some socialists in England suggested indeed that the State should bear the entire cost,² but Parliament took little heed of them. Every state that has estab-

¹ *Spectator*, Dec. 2, 1911, p. 947.

² In the Commons, Mr. Snowden so argued on July 6. Mr. Bernard Shaw also stood forth for a non-contributory system.

lished sickness insurance, after Germany in 1883 pointed the way, in so far at least took its cue from Germany as to give to both employers and employees a share of the burden. Germany herself fixed at two-thirds the portion that workmen should pay; at one-third the portion of employers. In invalidity insurance German workmen and employers share equally and the State adds a fixed sum, usually much less than a quarter of the total. Austria in 1888 differed only to the extent of allowing employers, if they desired, to shoulder a part of the workmen's share. Hungary in 1907 (superseding her law of 1891) assigned to employers one half and to workmen one half.¹ Luxemburg in 1901 followed closely the German system. Norway in 1909 charged the workmen with six-tenths, the employer with only one-tenth, and then broke precedent by charging the local authority with one-tenth and the State with two-tenths.

Mr. Lloyd George's plan — not as regards its general features changed by Parliament — is precisely like none of these. It most resembles that of Norway, in that it gives a substantial share to the State; and that of Germany in that it gives a rough third to the employer; but it is merely more liberal than any precursor, even than Hungary, in the share that it gives to the workmen. Where every other country had laid not less than one-half nor more than two-thirds of the load upon the workmen's backs, England laid three-eighths in the case of the women and four-ninths in the case of the men. Mr. Ramsay MacDonald tried hard to get the burden born equally by State, employer, and employee. "The advantage

¹ Since no book in English that I have seen gives a description of this interesting act, reference may be made to an article by M. Szántó in the *Economic Journal*, Dec. 1908, pp. 631-636. The text is given in the standard works of Zacher, vol. viii b, Berlin, 1908, and Ballou, *supplément général*, Paris, 1909, pp. 237-347.

of the scheme to the State," Mr. Lloyd George had said in introducing his bill, "is, of course, in a happy, contented and prosperous people."¹ This advantage is to be purchased by a weekly payment of 2*d.* for each insured man or woman. The employer's interest "is the efficiency of his workmen, and there is no doubt at all that a great insurance scheme of this kind . . . increases the efficiency of the workmen enormously."² Such efficiency the employers buy by a weekly payment of 3*d.* for each insured man or woman. Workmen, for the obvious gain which they will secure, are to pay, in the case of men 4*d.* weekly, in the case of women 3*d.*

Given a tripartite division of payments, only expediency, it would appear, can determine the shares. In Germany the argument had been freely used that if you would make a system universal you must purchase acceptance of it by favors in cost. Mr. Lloyd George and his associates dwelt often on the good things that the workman's 4*d.* or 3*d.*, subsidized, would buy for him. To the members of Parliament the Chancellor of the Exchequer put forth three reasons why the workpeople had been insuring insufficiently when left to themselves; the reasons seem also to urge the desirability of a subsidy. First, wages are often too low; second, in sickness and unemployment premiums cannot be maintained. Third, the sufficient margin of wages is spent in other ways. Mr. Lloyd George added that the 250,000 annual lapses in the friendly societies indicate 5,000,000 lapses in twenty years.³ Doubtless, finally, the sympathy that expressed itself in gratuitous old age pensions was not absent in the new legislation.

¹ This speech of May 4, 1911, is conveniently accessible in *The People's Insurance*, explained by D. Lloyd George, London, Hodder and Stoughton, 1911; see p. 11.

² *Ibid.*, p. 10.

³ *The People's Insurance*, pp. 5-6.

Much bitter criticism was directed against the provision prescribing (with exceptions presently to be noted) uniform rates of premium for all insured workmen. No continental precursor had done that. Germany and Austria had claimed from the workmen percentages (from one to four) of their wages. Germany in her invalidity insurance and Norway in her sickness insurance had graded the workmen into five and four (respectively) income groups and had exacted premiums varying proportionally with these. In return benefits had been graded. But the Lloyd George bill, sustained by the law-makers, had established a flat rate.¹ To be gained by this provision was an enviable degree of simplicity in the administration both of contributions and benefits. But the poorer workmen might with great difficulty sustain the uniform charge which bore with relatively great heaviness upon them. And of the very poorest workmen of all a special class had to be made, to whom special favors perhaps involving a new principle were accorded.

The group here consists of those "employed contributors of either sex of the age of twenty-one or upwards whose remuneration does not include the provision of board and lodging by their employer, and the rate of whose remuneration does not exceed 2s. 6d. a working day." To the premiums of this class the principle of the minimum wage may be said to have been applied. The normal weekly premium of 9d. for men and 8d. for women is collected. Where the earnings are not over 1s. 6d. per day, the insured pays nothing; the Treasury allowance of 2d. is increased to 3d., the employer adds for men 6d., for women 5d. When the earnings run from 1s. 6d. to

¹ A counterpart for this principle exists in the French Old Age Insurance Act of 1910.

2s., the insured relieves the employer to the extent of 1d. When the earnings are 2s. to 2s. 6d., the insured pays 3d., so relieving the employer of an additional penny and restoring the State to its normal allowance. In unmistakable terms it was recommended that the burden upon "the employer who profits by cheap labour" be in consequence of his advantage increased.¹ Insurance, held to be one of the necessities of life, is to be purchased for the poorest workers chiefly by their employers, secondarily by the State.

The class of voluntary insurers is interesting, mainly for the changes made in the bill by Parliament. "The Governor of the Bank of England could join if he liked and he would receive the State contribution," Mr. Lloyd George had said when presenting his bill.² But the House committee was persuaded by the doctors and others that an income limit of £160 was not too high. Voluntary contributors assume the share of the employer, as in the continental systems also.

For none of the insured was a difference of contribution based upon age. Throughout the period of transition to the time when all members of the system would have joined at the age of sixteen, a special advantage must accrue to older persons, since their sickness rate is high. To those who urged that the young must for a time support the old, the answer was only that the contributions of employers and State were so large that the young would at the outset receive in benefits more than they paid out; while in fifteen years, by actuarial calculation, the special burden of the old would virtually cease and then the rates of benefit could be generally increased.³

¹ *The People's Insurance*, p. 9.

² *Ibid.*, p. 132.

³ *Ibid.*, p. 9; cf. L. G. Chiosso *Money: A Nation Insured*, London, 1911, p. 12.

It is in the five species of benefit assignable to eligible workmen that the *raison d'être* of the act is to be sought.

(1) "Medical benefit." This is described as "medical treatment and attendance, including the provision of proper and sufficient medicines, and [by Parliamentary amendment to the bill] such medical and surgical appliances as may be prescribed." This minimum the continental schemes also had prescribed. Where the insurance society is opulent, and in some other cases, the benefit can be extended to persons dependent on the labor of an insured person. For this extension, a decidedly liberal precedent existed in Norway. It may be pointed out in passing that the provision of free drugs upon prescription is a great blow at quack medicines.

(2) "Sanatorium benefit." This consists of "treatment in sanatoria or other institutions or otherwise when suffering from tuberculosis, or such other diseases as the Local Government Board . . . may appoint." Voluntarily, and not at all because of minimum legal provision, the German invalidity associations had set up over the Empire sanatoria and other special means of treating the tuberculous. Their achievement had been widely acclaimed.¹ Its benefit had been in intention fiscal as well as humanitarian. An interesting parallel is offered in the recent history of certain American industrial insurance companies. The principle that an insurance institution may wisely spend money to reduce its worst risks is indeed no new one. But precedent is lacking for the magnitude of its application in England.

¹ In 1909, the invalidity associations treated 101,188 persons, at an average expense of 240 marks. Of the number 42,980 were consumptives. *Amtliche Nachrichten des Reichs-Versicherungsamts*, 1910. 2 Beiheft: *Statistik der Heilbehandlung*, pp. 160 and 162.

In introducing his bill, the Chancellor had dwelt passionately on "the most heartrending and painful disease that ever afflicted the human race." There were, he urged, four or five hundred thousand persons suffering from tuberculosis in the United Kingdom. One out of three deaths of males aged fourteen to fifty-five was from tuberculosis. Only 2000 beds were available in sanatoria (enough for 6000 patients a year). "Because the State has suffered," the State should act.¹ While Parliament was debating the sanatorium benefit, the Royal Commission on Tuberculosis presented its final report showing that bovine tuberculosis is communicable to man.² It is expected that a special Treasury contribution of £1,500,000 will be used for building sanatoria and that over £1,000,000 a year, drawn from the insurance funds, will be used for maintenance. To every pound that the local authorities contribute to sanatoria, the Treasury will add a pound. So a chain of sanatoria will cover the land. Section 17 of the act provides for the extension of the sanatorium benefit to dependents of the insured.

(3) "Sickness benefit." Nothing novel is ventured here. Beginning from the fourth day of illness and continuing for not more than twenty-six weeks, a weekly payment of 10s. for men and 7s. 6d. for women is established. On the continent a percentage of wages had been usual, but the English law provides for a variety of reductions from the benefit for cause. In Germany the duration of the benefit was long maintained at thirteen weeks, and invalidity payment did not begin before a further equal interval.

(4) "Disablement benefit." Five shillings weekly

¹ *The People's Insurance*, pp. 17 and 18.

² *The Spectator*, July 15, 1911, p. 95.

are payable after disease or disablement has lasted twenty-six weeks, and may continue if necessary to the age of seventy. The German invalidity benefit differs only in depending for its amount on the number and amount of premiums previously paid.

(5) "Maternity benefit." In the case of confinement, 30s. are payable to any insured woman or the wife of an insured man. For such provision there was general precedent.

As by the German law, sundry "additional benefits" are permitted. In special cases these are alternative or wholly supplementary to those enumerated. They will become important when the burden has been outgrown of those persons who now join the scheme in middle or advanced years. Partly they are only more liberal provision of the previous benefits (having a parallel in those of the more successful German sickness clubs). Partly they are new, such as dental service, maintenance of convalescence homes, superannuation allowances, remission of arrears (ordinarily, arrears averaging more than thirteen weeks a year compel a graded reduction of the benefit, especially the cash benefit). In Germany convalescence homes had had a significant development. Conspicuously absent from the British list is the burial benefit of other systems, offered even by many of the friendly societies and trade unions of England.

No knottier problem presents itself to the framers of an insurance scheme than that of the administrative machinery by which it shall work. The State may compel insurance through societies set up by itself. No state has done that. Or it may compel insurance through the existing organizations and others like them to be provided. No state has done just that. In varying degrees an option in the choice of an in-

stitution has been permitted in all schemes hitherto enacted.

The country most tolerant of previously existing societies has been Germany, yet unwillingly. Gilds, miners' associations, friendly societies, factory and building societies, local (trade) societies were permitted, and for workmen not naturally fitting into these, a communal machinery was set up. Austria, while permitting the same range of societies, made her official (*Bezirk*) organization quite separate from the local administration, and by grouping the official societies in contiguous districts permitted a series of economies which made the public institution in itself inviting. Hungary abandoned in 1907 all types of non-public society except the employer's society. Norway presumes that the insured will join a public local organization, but allows the existence of any society that fulfils certain qualifications. The new German *Reichsversicherungsordnung* of 1911, tho abolishing the communal organization, reduces the voluntary activity of the other types, and sets up also an elaborate machinery less for the residual workmen than for those special classes (like the agricultural laborers) admitted to insurance in 1911. The German invalidity benefit continues to be administered by bureaucratic institutions.

There is thus, outside of Great Britain, an increasing disposition to develop special administrative machinery. Boldly sailing in an opposite direction, the Lloyd George act has a friendly greeting for any voluntary society that complies with minimum demands. More than a hint doubtless came to the Chancellor from the French Old Age Insurance law of 1910. Yet the utilization of *sociétés de secours mutuels* for pension service is a lighter task than the utilization

of the friendly societies and trade unions for the multi-form services of sickness insurance. As we shall see, the Chancellor's special machinery is not large, and is in the main autonomous.

Under the act the chief duties of administration fall to "approved societies," — not quite those so named in the friendly society acts. To secure approval, societies must not be carried on for profit. They must be subject to the absolute control of their members (non-honorary). They must reject no applicant for membership on ground of age. They must make rules (to be approved) for their government, for managing disputes, for administering benefits, etc. They must deposit security to protect the funds they handle. They must keep separate books for all business under the Insurance Act. Every three years they must submit to a valuation. If a surplus is then found (it will arise from good management), they may turn it to their own uses; if a deficiency is found (it can only result from bad management), they must make it up, as by levy, and a society with branches is responsible for the deficiency of a branch. If at any valuation a society has less than 5000 members, it shall be pooled for the purposes of the valuation with as many others as will attain a total of 5000. Pooling may be by a voluntary "association"; otherwise it must be through the formation of a local "group" by the authorities. With slight modification the rules touching surplus and deficiency then apply to the association or group. The original bill had asked that 10,000 be the minimum. No other country has sought so drastically to secure the economies of large numbers. The average membership of German clubs has increased since 1885 from 228 to 538¹ (1908);

¹ Twenty-fourth Annual Report of United States Commissioner of Labor, vol. 1, p. 1221.

many have less than 100 members.¹ The other continental schemes likewise include hosts of small societies, paying in their costs the penalty of smallness.

Provision is made in the bill for the retention of employers' provident clubs, but the general rules enumerated apply to them. No employer shall require his workmen to insure through such clubs. Trade unions should find compliance with the requirements for "approved societies" not difficult. Their most considerable task would be the segregation of insurance funds; this has not been without precedent on the continent at least.

Whether, under the new régime, the friendly societies will deteriorate in character, thoughtful persons have asked.² The 6,000,000 memberships now existing in England, representing fully 4,500,000 persons, are an unparalleled achievement in voluntary insurance. Through years of disaster the societies gradually developed principles of organization which have fecundated associations the world over. Collapse still occurs; societies with old men are avoided by the young.³ Those societies that come under the five-year valuation are, in a distressing majority of cases, shown insolvent and forced to reduce benefits or increase premiums. Despite this the growth has been so large, the training in self-government so valuable, that many persons have feared that the regulating hand of the State might freeze out the spontaneity and progressiveness that have characterized the clubs.

¹ 44.6 per cent of the 23,240 societies in Germany in 1908 had less than 100 members. See *Einführung* (p. 9) by Dr. Olshausen in *Reichsversicherungsordnung*, Berlin, Heymann, 1911.

² The essential difficulties were outlined betimes by Sir E. Brabrook in *State Invalidity Insurance*, *Economic Journal*, March, 1911, pp. 1-5.

³ The Poor Law Commission reported failures of friendly societies among the minor causes of pauperism. (Report, p. 226).

So it is not unnatural that sides should have been taken in controversy. In the act as passed, the Chancellor's original provisions touching "approved societies" are scarcely recognizable. For the dividing clubs, ignored in the bill and in the act, no place naturally could be found at all. The other societies sought amendment of nearly every clause regarding sickness insurance.¹ Their objection against association and grouping of societies did not prevail. Nor was a tangible proposal possible, given "national insurance," that the character of the membership of societies should not be diluted. Hitherto the *élite* among the workmen, most of all the artisans, had been insured. Henceforth a lowering of the bars, the admission to "friendly" insurance of many who would not otherwise have been sought as "friends," was inevitable. Even tho the lowest classes of all were specially provided for, the average would decline.

The approved societies are allowed to invest in such channels as are open to savings banks, or to expend, as necessary, for administration and benefits, the sums representing the contributions of their members to the insurance: 4*d.* weekly per man, 3*d.* weekly per woman, in normal instances. Here are the chances for surplus or deficit—the reward or, as may be, the price of autonomy. The benefits to be administered are only those involving payments of cash—sickness, disablement, and maternity, and such "additional" benefits (in cash) as opulence may allow. Be it said in this connection that any surplus, actually genuine, by now accumulated in the societies

¹ For a list of amendments desired shortly after the bill was introduced see J. H. Watts: *National Insurance Bill*. London. Stevens & Sons, 1911; pp. 244-276; pp. cf. 9-10.

shall continue wholly at their disposition, for additional benefits to present members.

Funds will be collected by a stamp system as in Germany. Each workman will carry a card on which his employer on pay day will enter stamps, bought at the Post Office, for the amount of the workman's and the employer's contributions. When the card is filled the society will hold it as an evidence of payments.

Nearly 900,000 persons, the actuaries calculated,¹ will be refused admittance to any approved society. Such men, the unsteady and the disabled, the flotsam and jetsam of industry, and men expelled for valid reasons by the societies, may find cover under an official arrangement. Without setting up such special instruments for insurance as the continental countries have done, the government lets these persons become, through the post offices, "deposit contributors." They are not insured. They save compulsorily and they enjoy the employer's and State's subsidy. Until their individual credit is exhausted they may draw the usual cash benefits. Deduction is made also for the medical benefits, for administrative costs, and the like. The "bad risks" will speedily fall upon the rates — where till now they have been; they will not be a burden on the good risks. They are a class surgically cut out of the insurance system. In Germany far less choice as to membership rests in practise on the societies, so that the bad risks do not so freely collect at the bottom as they will in England. Ghent found that a voluntary system of subsidized saving (for unemployment) intended essentially for the unskilled failed utterly. Parliament, not persuaded that Mr. Lloyd George's compulsory plan was a roseate

¹ *Op. cit.* pp. 7—9.

solution, gave it only experimental existence, to January 1, 1915.¹

A new and pregnant specialization is given in the English scheme to the medical service. The club method of insurance has always had a natural basis in the opportunity it has given to control malingering. But the club method has had less certain advantages for the supply of medical treatment. Not without reason the Lloyd George act establishes in every county and county borough a special Insurance Committee (called in the bill, till the stage of recommitment, Local Health Committee). Among the members (40 to 80) of such committees, three-fifths shall represent the insured and the deposit contributors, one-fifth shall be appointed by the council of the county or county borough, two members shall represent the doctors, one to three members shall be doctors, the rest shall be appointed by the upper insurance authorities. Every approved society with members in the county shall, in so far, have arrangements with the Insurance Committee to administer its medical and sanatorium benefits.

Round the position of the doctors under the bill a bitter contest was fought. The opposition of the friendly societies to losing all direct connection with the doctors was strong. But this was nothing com-

¹ The Webbs contemplate with gloom the sifting-down process. "There will be a steady tendency towards the segregation of good lives in the strongest societies, leaving the descending scale of indifferent and bad lives to fall into the other societies We shall have the curious spectacle of those Friendly Societies . . . capable of providing for their own sickness without help from others, voting themselves triennially larger and more varied benefits out of the unnecessarily liberal Government subvention and employers' contribution; whilst other Societies, reduced to accepting the indifferent lives of the very poor, will find themselves at each valuation, struggling to maintain the prescribed minimum of solvency. . . . And at the bottom of the scale we shall find a heterogeneous crowd of so-called "Post Office contributors," literally millions in number, of all ages and both sexes: and their benefits under the scheme are meagre." S. and B. Webb, *The Prevention of Destitution* (London, 1911), p. 177-178. A danger there is; but is it likely that approved societies will not arise to look after most among the "millions"?

pared with the unrelenting campaign of the doctors themselves. The Chancellor's assertion that the bill was not a "Doctor's Endowment bill," his imprudent allusion in a speech to the "wrangle in the sick-room"¹ only fanned the blaze. From the first the doctors held that the ambit of the bill should be reduced, for both voluntary and compulsory contributors, to persons earning not over, say, £2 weekly. Otherwise, well-paying practises would be lost to them. They asked for a larger fee. The act as passed merely gives the Insurance Committees power to make arrangements with the doctors: to publish lists of doctors who will do service, to accept any efficient doctor who applies, to secure to the insured the right to choose their doctor (who may, however, reject the insured), and otherwise to assign doctors to the insured.² The financial provision was such that a capitation sum of about 6s. a year would be available for treatment and drugs. One shilling would be needed for drugs. The five shillings remaining to the doctors were really, the Chancellor urged, a larger sum than they had been getting. The friendly societies had paid 4s. commonly and that sum covered the cost of drugs. True, they were select persons. But again, payment by the poor was often defaulted; it would not be henceforth. And tuberculous cases would be out of the hands of doctors. Yet the doctors persisted. The British Medical Association's opposition was endorsed by 20,000 of its members.³ Various concessions were secured. After the act had been passed, 2000 doctors met in London, hissed (so the

¹ Watts, *op. cit.* p. 48.

² In Germany choice of the doctor by the insured had been little restricted; the "Streber," anxious for practice, had been at times an evil.

³ Daily papers, December 19. The Nation (London), December 23, p. 499. For amendments desired by the Association, see Watts, *op. cit.*, pp. 277-284.

report goes) Sir Victor Horsley for having yielded to the blandishments of the Chancellor, and voted to boycott the act.¹ Out of 20,712 replies to a letter sent to doctors, *The Practitioner* received 20,149 saying that honest service could not be given under the act; and that journal is now seeking to find 23,000 who will (conditionally) boycott the act — enough to prevent its working.² But probably the 8000 doctors (more or less) needed to work the act will be found; that is about one-fourth of the doctors to attend one-third of the people.³

Administration of medical and sanatorium benefit is only part of the duties of the Insurance Committees. They must from time to time make reports as to the health of the insured persons in their area. They are required to do what many German societies have been doing spontaneously — provide for the giving of lectures and the publication of information on questions of health.⁴ They share the power to demand reimbursal for sums spent on excessive sickness where they believe that the excess is due to conditions of employment, bad housing, or insanitary conditions, insufficient or contaminated water, neglect to enforce factory legislation, or legislation dealing with public health or with the housing of the working classes. If agreement is not reached, the Secretary of State or the Local Government Board may conduct an inquiry and, if ground exists, compel the losses to be made good. Inquiry into excessive sickness had been undertaken occasionally in Germany.

The national machinery provided to operate this

¹ *The Spectator*, December 23, 1911, pp. 1110-1111; January 6, 1912, p. 12.

² On the doctors, cf. Watts, *op. cit.* pp. 22-48; *Saturday Review*, June 3, 1911.

³ For the important class of persons in "secondary poverty," in Mr. Rowntree's nomenclature, this may be a pregnant provision.

insurance system of many parts is simple enough. A number (undetermined) of Insurance Commissioners shall have a central office in London. They shall make regulations for carrying the act into effect. They shall approve societies, pass on their rules, appoint various officers, and be the court of highest resort in case of disputes. They shall appoint for their own assistance an Advisory Council of representatives of employers' associations and approved societies, some practising physicians, and at least two women.

All contributions shall be paid into a National Health Insurance Fund. Moneys not needed for present use shall be duly credited and paid over to the National Debt Commissioners and by them invested in securities acceptable by savings banks, preference being given to stock or bonds facilitating advances for the purposes of the Housing Acts. The German invalidity and French old age insurance funds have similarly been applied in the interests of popular housing. The Insurance Commissioners shall credit to each approved society, in virtue of its admission of persons over 16, so-called "reserve values," being capital sums needed to meet the sickness burden of such members, a burden not met in their own contributions. These sums will for some time be large. The Insurance Commissioners shall pay over to the societies the amount of the contributions of their members; but they will themselves, upon request, invest these sums for the societies.

III. UNEMPLOYMENT INSURANCE

To the unemployment part of the Insurance bill less discussion was directed than to the sickness part, both in Parliament and by the nation. That may have been because its provisions were not at the outset to

apply to more than 2,400,000 persons.¹ In every other respect, however, the plan was fitted to provoke discussion. It was a venture on a new sea. No other nation had made the venture. And few were the persons who had counselled it. For tho both majority and minority Poor Law Commissioners had recommended insurance, they desired voluntary insurance.² The first book in English on the subject, Mr. Schloss's volume of 1909,³ had advised against compulsion; the second, and much better book by Mr. Gibbon⁴ had taken the same ground. And the only serious experiment with compulsion, the communal experiment of St. Gall, had collapsed years ago ignominiously — not wholly, however, for causes unavoidable.⁵

The actuarial difficulties in the way of compulsory insurance against unemployment were enormously greater than those in the way of sickness insurance. For the suggestive long series of friendly society statistics and the magnificent and comforting array of German data there was no equivalent. The act compels insurance for all workmen in the trades whose unemployment is most serious: building, ship-

Experiment

Trades

¹ Return "containing the Report by Mr. Thomas Ackland . . . on the Scheme for Insurance against Unemployment embodied in Part II of the National Insurance Bill." 1911, p. 5.

² Report pp. 632, 1199-1201.

³ D. F. Schloss, *Insurance against Unemployment*, London, P. S. King, cf. pp. 72-81.

⁴ I. G. Gibbon, *Insurance against Unemployment*, London, P. S. King, 1911, cf. pp. 238-250.

⁵ Compulsory schemes had been as little favored by continental writers. See the full German study of the Imperial Statistical Office: *Die Versicherung gegen die Folgen der Arbeitslosigkeit*, Berlin, Heymann, 1906; cf. pp. 665-667. Similarly the Baden memorial of 1909, summarised in *Reichs-Arbeitsblatt*, Feb. 1910, p. 104. Also P. Dupont, *L'assurance contre le chômage*, Paris, 1908 (pp. 233-237); Ph. de Las Cases, *Le chômage*, Paris, 1909 (pp. 174-185); and A. Agnelli, *La disoccupazione operaia*, Milan, 1909 (260-281). Mr. Beveridge had been non-committal: *Unemployment, a Problem of Industry*, London, 1910 (pp. 228-229). See below on advocacy of compulsion.

building, construction of works, mechanical engineering, iron foundry, construction of vehicles, sawmilling (and the Board of Trade may extend it to others). But unemployment is an epidemic as well as a chronic social disease. With twenty years' figures of only certain trade unions before them, the actuaries felt warranted in inferring an annual average of five per cent unemployment, but they knew that their figure was not significant.¹ They were aware that in the previous ten years the unemployment benefits of the trade union members of the "insured trades" averaging annually per member almost £1, had fluctuated between 8s. 2d. and 34s. 11d.² "The sound and prudent course," said Mr. Ackland, "is at the outset to proceed experimentally," and not "to attempt any differentiation of the rates of contribution or benefit in respect of (a) the ages, (b) the occupations, (c) the rate of wages, of the workmen."³ In accordance, the act demands a uniform deduction for weekly wages of 2½d. the addition of a like amount by the employer, and by the State 1½d. (At 7-year intervals the level of contributions may be, within set limits, raised or lowered, as accumulating statistics warrant.) Here again is the tripartite device of the sickness scheme. The markedly occupational character of unemployment and the qualitative differences of the

¹ Report of the Actuaries (cit.) pp. 18-20.

² National Insurance Bill Tables showing the rules and expenditure of trade unions in respect of unemployed benefit, 1911, ed. 5703, p. 15; cf. pp. 276-293.

³ National Insurance Bill, Return "containing the report of Mr. Thomas G. Ackland . . . on the scheme for insurance against unemployment . . ." London, 1911, p. 10. Such distinctions are of course *per se* desirable; cf. Gibbon, pp. 260-261. For a defense of the principles of the British act see the presidential address of Sir H. Llewellyn Smith, Economic Science Section of British Association, Sheffield, 1910. Cf. W. J. Ashley in *Economic Journal*, June, 1911 (pp. 266-274) and R. Lennard in *Economic Journal*, Sept., 1911 (pp. 335-345). Compulsion had been favored by Mr. Churchill in 1909 (Speech reproduced in *Liberalism and the Social Problem*, London, 1910; cf. p. 266 ff.).

workers makes the appeal to working-class solidarity much bolder than in the case of sickness. The uniform state subsidy can be defended because unemployment is an unescapable concomitant of a state-protected régime of private property and competitive industry. But the trade's share (if one may so describe the employer's payment) should in the best system reflect the peculiar risks of the trade.

The administrative organization for the scheme at no point touches the peculiar organs of the sickness insurance. It is true that the employer will buy stamps at the post office but they will be special stamps and will be entered on a special card. All money constituting income under the scheme shall be paid into an Unemployment Fund, to be managed by the Board of Trade, which has large powers to make regulations for the insurance system. Investments shall be made by the National Debt Commissioners, again in such securities as savings banks may purchase. After the first week of unemployment, a weekly cash benefit of 7s. will probably be paid, and probably for as long as fifteen weeks in any year, if unemployment continues.¹

The expected safeguards of a system whose hazards have to other countries been forbidding are several. The workman must "prove" his employability — past employment "in an insured trade in each of not less than twenty-six separate calendar weeks in the preceding five years." He must, while capable of work, have been unsuccessful in finding it. Here

¹ These terms the Board of Trade may freely change. It may change, as has been said, the rates of contribution. Further flexibility due to the difficult actuarial basis of the scheme takes the form of a possible Treasury advance to the amount of £3,000,000 in time of need; if the fund is insolvent, the Board of Trade must temporarily so alter contributions and benefits as to restore solvency. The voluntary systems of Denmark, Ghent, and other places have been compelled in times of stress to increase subsidy disbursements greatly.

the admirable national system of employment exchanges comes into play. The fact that no other country has such a well-organized system of exchanges is the first reason why no other country could feasibly attempt compulsory insurance. Employment bureaus may reduce permanently the dimensions of what Mr. Beveridge calls the "reserve" of labor, even tho they may not abolish unemployment. Failure of the exchanges to provide labor in England will be fair evidence that unemployment is due to seasonal or cyclical or minor inevitable causes, and that the unemployed person may claim a benefit. The continuance of his unemployment must be attested by the person's presenting himself every day to the authorities.¹ Probably the post office will be used, in part at least, for paying out benefits, as it is already used for old age pensions and will be for "deposit contributors" in the sickness system. The workmen shall not be forced to accept employment where there is a trade dispute or where wages are less than those paid as a result of collective bargaining or, failing that, by "good employers." No benefit shall be paid where the cause of unemployment is misconduct or a trade dispute. "Insurance officers" shall be appointed to test claims. The workman may appeal to a "court of referees" (representatives equally of employers and employees and a chairman appointed by the Board of Trade). If their decision is not accepted by the insurance officer, appeal may be to an "umpire" appointed for last resort.

Of special interest are certain novel moralizing or preventive measures of the act. It is obvious that constancy of employment of many men is the first con-

¹ Tho the act is inexplicit, its intention is clearly that the labor exchanges should be worked into its administrative machinery. See National Insurance Bill, Part II, Explanatory Memorandum; London, 1911, ed. 5991, p. 4.

dition of decasualization — reducing the casual fringe. For every workman for whom 45 contributions have been paid during the year, the employer may claim refund of one-third of the portion paid by him (the employer). The refund will still be allowed if through the labor exchange two or more employers together keep the same person employed for 45 weeks. No analogous provision is made for the workman, probably because it would introduce a non-industrial incentive for the workman's loyalty. But the workman whose fitness has maintained him in employment whether with one employer or many, to such effect that at the age of sixty he has drawn in benefits less than the share of his wages he has contributed, may receive back the excess of his payments with interest. This seems an admirable device for rewarding workpeople of superior industrial quality. It means that the real burden of caring for the individuals on whom the incidence of unemployment falls most promptly will rest mainly on those individuals, on the employers in general, and on the State. A third measure provides that where an employer, instead of discharging anybody, employs all on short time, no contribution will for the time be demanded either for the employer or as deductions from wages. In mining, and to a less extent in the textile trades, short time has often been resorted to,¹ but it is not feasible for all industries. Lastly, if the insurance officer believes that defective skill or knowledge can be remedied by technical instruction, he may draw upon the Fund to provide such instruction; but of course it must appear that less money will probably be needed in that case than if benefits are paid.²

¹ Cf. Chapman and Hallsworth, *Unemployment in Lancashire*, Manchester, 1909, pp. 45-59.

² This important clause was added in Committee. See Standing Committee B, Fourth Day's Proceedings, pp. 301-314.

In interesting ways the trade unions are utilized. Where a trade union itself provides unemployed benefit, it may increase its disbursements, by paying out the benefits of the insurance system. To it will then be repaid out of the Unemployment Fund this supplementary portion; with the proviso, for protection, that in no case shall the supplement exceed three-quarters the amount the union itself pays.

In connection with the unions there is grafted upon the compulsory insurance scheme—which is not unlike the sickness insurance, and so, ulteriorly, the German system—a series of provisions for voluntary insurance imitated from the so-called “Ghent system.”¹ The characteristic is a public subsidy to unions paying unemployed benefit, proportioned to the amounts they pay. This principle, applied by numerous Belgian and other cities, has been incorporated in national legislation by Denmark and Norway. Its limitation is that workers who are not union members—chiefly the unskilled—miss the advantage of the subsidy. Norway is exceptional in providing that to get the subsidy unions must admit any applicant to insurance membership at least. Such insurance systems have had marked success. To unions not in the insured trades, paying out-of-work benefit, the Lloyd George act will repay a sum not exceeding one-sixth of the amount expended on out-of-work benefit. Probably the subsidy will lead in England, as it has led elsewhere, to greater effort on the part of the unions to insure themselves. It should be added that the subsidy is to be granted, so as not to discriminate, to unions within the insured trades also.

¹ Its author has objected to this term, because at Ghent persons not in trade unions were also provided for.

IV. ULTERIOR EFFECTS

Are there seeds of destruction in the Lloyd George act? Will experience prove the skeptical right? Will some day, when it is too late, the evidence be clear that National Insurance is the all-pervading cancer destroying the vitals of the State — as a German critic held recently of the German system?

In a realm so new one can only speculate. Assuredly the mutations of society offer today no more inviting field for speculation than the probable effects of insurance schemes. Enough that is tangible can be grasped to bring results not wholly unconvincing.

One needful factor in a state insurance scheme is economy of organization. At the cost of certain inequalities among the insured, the British act provides a machinery unprecedentedly simple. The flat rate of contribution, the high minimum of membership in the approved societies, the virtually single type of society, supplemented by a simple state and local organization, all these point to economy. The German stamp system, copied even by France and now by England because it seems indispensable, has not in Germany created a high cost of administration. In 1908 sickness insurance cost as to administration \$.35 a member in Germany, equal to 5.25 per cent of the year's expenditures.¹ A state organization of medical service is no unnatural consequence in an era of public health boards, general hospitals, factory doctors, and insurance company doctors; it merely insists to the full on the economies of combination.

But are not the economies of combination overwhelmed by special losses when medical service is

¹ Twenty-fourth Annual Report of U. S. Commissioner of Labor, Vol. I, pp. 1237, 1239.

part of an insurance system? The question is most serious. Idleness and part pay are not always an inconvenient alternative to work at full wages. In the purely mutual friendly societies malingering is a parasite that only resolute management can control. In German employers-aided insurance it is a more dangerous foe; the strange institution of the paid visitor has in some places been resorted to and, we are told, without encountering ill-will! Many persons believe that malingering is the whole or main cause of the increase in number of average cases of sickness and days of sickness per year in Germany. Other causes are given; the inclusion of diseases not formerly included (those arising in misconduct), the doubling of the period in which sickness benefit may be paid, a heightened concern for less serious attacks of illness previously passed in neglect.

Another cause for the increase in sickness, here tentatively urged, seems to have escaped attention. It is probably one which every insurance system must contemplate, even if much preventive activity is undertaken. "The sickness-rates of the Friendly Societies," it is said (as evidence of malingering), "go steadily up, notwithstanding that the death rate, which usually measures the amount of real disease, is falling among the Friendly Society membership as among the population at large."¹ The same antithesis is pointed out for Germany: "in contrast with the increase in sickness rates, there has been a decrease in the death-rates."² One must ask: does the death rate infallibly run parallel to the rate of real sickness? A very high death rate means

¹ S. and B. Webb: *op. cit.*, p. 167.

² I. G. Gibbon: *Insurance against Sickness and Invalidity and Old Age in Germany*, *Economic Journal*, June, 1911, p. 191.

usually that infant mortality is great; it is less conclusive of the sickness of adults. A very low death rate means (in a population unaffected by migration) that most people born live to old age. Now it is a familiar fact that among our civilized countries infant mortality has declined and that for every age group the expectation of life has increased. This need not signify that there is less sickness per person, but perhaps only that advanced medical and surgical knowledge and skill have succeeded in getting more people past crises than before. Physicians constantly tell us, of some notable person, that with present medical ways he would not have died when he did. Excision of the appendix, for example, has saved countless persons from death. For nearly every serious disease the decline in the death rate relative to the number of cases of illness has been extraordinary.

Has there been less real sickness? Of smallpox, yellow fever, typhoid, the epidemic diseases especially, there has been much less. Here preventive medicine has triumphed signally. Pneumonia and cancer have apparently been increasing, and the death rates from them, too. Appendicitis is probably not less frequent than it was. It is doubtful if phthisis is less, tho fewer cases lead to death. The sexual diseases continue widespread. Minor ailments are omnipresent. "Once you penetrate beneath conventional acquaintance there will almost invariably be found some functional impairment of heart, liver, kidneys, or bladder; or dyspepsia, gastritis, jaundice, gallstones, constipation, diarrhea; or insomnia, neurasthenia, nervousness, neuritis, neuralgia, sick headache; or tonsillitis, bronchitis, hay fever, catarrh, grip, colds, sore throat; or rupture, hernia, phlebitis, skin eruption; or rheumatism, lumbago, gout, obesity; or

decayed teeth, baldness, deafness, eye ailment, spinal curvature, lameness, broken bones, dislocations, sprains, bruises, cuts, burns, or other troubles.”¹ These illnesses are “real” enough. Some we do not know how to prevent. Some we do not care to prevent directly, but they are points of weakness and may lead to more serious and, from the new point of view, unpreventable diseases. Nearly every patient whom doctors save from death retains a *locus minoris resistentiae*. Many diseases would require miracles of well-ordered lives to prevent. No smallpox tactics suffice. They come with urban inhabitation and the excitement and joys of urban living. They come with the comforts and refinements of civilized life, with means taken to rise in the social scale and means taken to maintain social position. They will always depend upon the most human of traits, the Böhm-Bawerkian assessment of present goods above future goods. With more people not only living in cities, but living and working and playing indoors, there may be a decreasing hardness of fibre in the individual and an increasing sensitiveness that makes for disease.

The case is not without its compensations. With medical aid we survive to later years. Statistics universally show greater morbidity with advancing years. More of us live to the years of morbidity. We are willing to be sick once oftener next year and two weeks longer next year than last, if in return we may be well for nine tenths of next year. This is true, not “despite” a decrease in the death rate, but as a means to the decrease. Statistics to be sure show both in Germany and England, a somewhat increased

¹ I. Fisher: Report on National Vitality (Bulletin of the Committee of One Hundred on National Health), Washington, 1909, p. 38.

morbidity for the middle and early age groups too. Apart from the general influences described that make illness more frequent, is it not true for these years, as it clearly is for later ones, that survival where once death would have followed disease may leave individuals more than normally susceptible to fresh illness? Just how important this factor is I shall not venture to say.¹

An economic factor deserves mention. So far as a population includes persons whose standards of living are low, who marry early and have many children, insurance will for them avail little. Nay, it may intensify the competition for life: maternity benefit invites to the new struggle, sickness treatment postpones the death that might end the struggle. In another direction the consequences of the act, as regards births, will be more significant. When additional benefits are extended to the worker's dependents, or when sickness or unemployment pay contributes to maintain children in health (as it certainly will), the death rate of children will tend to decline. Correspondingly the births in such families will be fewer. For the workman whose standard of living includes a family of five will be less likely to have to make good by further procreation a loss by death. With the rapid acceptance by the working classes of means of voluntary restriction of births, this consequence of the act may be far-reaching.

The Lloyd George Act presupposes the correctness of a principle of action which is still mooted. Both its sickness and unemployment provisions embody what may be designated the minimum-wage principle. The contributions of employers and the State will

¹ See in connection with this paragraph the diagram in S. and B. Webb, *op. cit.*, p. 217, showing the rising rates of sickness by age groups.

only in part come out of wages. It is striking that the income-tax minimum of £160 is the maximum income for an insurable person not a manual worker. To him that hath not shall be given, from him that hath shall be taken away. Taxes contributed indirectly by insured persons certainly amount to less than half the public income. The employers' contribution cannot all be shifted to wages. Largely therefore the prosperous must subsidize the indigent. The weak will survive. The disproportion with the strong may increase. The hope is that the nation will gain because the poor, cared-for, will become stronger industrial and social citizens. Malthus would have been skeptical. Yet nations have shown themselves capable in the last century of raising their plane of living.

More serious may be the moral menace. Even if some of the state's and employer's burden is shifted to the workmen, the form of insurance remains that of a great subsidy. The worker is getting not only a *quid pro quo* but a *quid pro nihilo*. When the worker ceases to support the State and the State supports the worker, in President Cleveland's phrase, trouble may come. How Herbert Spencer would have been disheartened by this latest confusion of the "law of the state" and the "law of the family"! The question of malingering sinks to secondary significance. Multitudinous dangers are predicted to follow reliance upon the State: loss of initiative, independence, boldness, persistence, industry. Nay, these qualities are even now deficient — how can insurance implant them? Are we not again in one of these eras when men think only of reforming the State and not of reforming themselves? Eloquently in the last pages of his monumental work, Charles Booth, tracing the chief needs of the people of London, held greater

individual responsibility to be a leading one; yet the largesses of the State were then more spare than they are now, and will be.

Those who hold that all manly qualities are born of the struggle and that the greater the struggle the finer the qualities, will view with regret the English insurance system. They point out that the poison of the peace movement is already that it provides no moral equivalent for war. With open arms they "welcome each rebuff that turns earth's smoothness rough."

Are they right? Their critics say: "If terror be an incentive to thrift, surely the penalties of the system which we have abandoned ought to have stimulated thrift as much as anything could have been stimulated in this world. The mass of the laboring poor have known that unless they made provision for their old age betimes they would perish miserably in the workhouse. Yet they have made no provision."¹ Again, "the incalculable risk of a prolonged depression of trade . . . is one the exposure to which of the individual workman does little but harm. Such a risk is too much beyond his powers of foresight, and also too great in magnitude . . . to exercise any appreciable effect in stimulating self-help, while the liability to see all his savings swept away in a few weeks by cyclical fluctuations in employment which he can do nothing to avoid is a demoralising risk acting on his character precisely like the liability to earthquake or other cataclysm, and discouraging to . . . the development and maintenance of habits of providence."² And again, "It is a great mistake to suppose that thrift is

¹ W. Churchill, *op. cit.* p. 209; the passage is from an address spoken at Dundee, October, 1908.

² H. Llewellyn Smith, *op. cit.*, p. 11.

caused only by fear; it springs from hope as well as from fear; where there is no hope, be sure there will be no thrift."¹

With an important reservation, these views may be held pertinent. The reservation is that the nation which adopts an insurance system must be a democratic nation. Slaves and the downtrodden, those doomed to stay always where they are, will dissipate a gift and, so far as not prevented, will refrain from arduous activity. But where men are free to rise, where handicaps of birth and circumstance can be broken through, where the successive rewards of successive valuable activities are always paid in position or cash, there men will strive to rise. These things lacking, national insurance becomes an instrument to atrophy and decay. The same things present, the competition of men among men is merely lifted to a higher plane. The elevation of the race from barbarism to civilization has been one long process of losing some modes of competition and acquiring new modes. Once the struggle for life ruled brutally; that greatly abated or softened, the struggle for better living becomes among modern peoples the stronger passion. We are not so far away from the old days but that checks and hedges are needful to steer our course through insurance, but of democracy we have a greater measure than hitherto and we think we shall have a still greater measure in the future.

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¹ W. Churchill, *op. cit.*, p. 209.

THE INCOME OF CAPITAL

SUMMARY

I. Recent development of agio theory; time-preference, 313. — A wrong view of psychology of investment, 315. — No exchange of time-values, 316. — II. Modern form of abstinence theory, 318. — No valid generalisation possible in regard to abstinence, 318. — Abstinential savings not regulative of rate of return, 319. — Rate due to objective factors, 320. — III. Productivity theory based on restricted view of productive process, 322. — Impossibility of distinguishing a product of capital if entire process is taken into consideration, 323. — IV. Minimum of data necessary to theory of income of capital, 324. — Failure of certain theories to account for necessary data, 325. — Capital resolvable into wages, 326. — Wages determined independently of product of capitalistic industry, 327. — Income of capital a residual, 328. — V. How profit is kept from consumer, 332. — How profit is kept from laborer, 333. — The capitalistic opportunity curve, 334. — Dependence of capitalistic income on limited development of capitalism, 335. — How rate of profit is determined, 337. — Limitations of theoretical method, 338.

I

THE bias in favor of "psychological" economics has found its perfect expression in a recent development of the agio theory of interest. The much questioned "technical superiority of present goods," the "objective" factor in Böhm-Bawerk's formulation, has been eliminated. Of the "causes" of interest there remain only the *subjective* factors, as a careless but convenient usage permits us to call the supposed desires and valuations of the consumer. The agio theory has thus become what Böhm-Bawerk asserted it to be, a logical development of the Austrian theory of value. As such it describes the "economic man," comparing utilities not only of goods in the present

and immediate future, but of the prospective goods of years to come. Interest becomes a problem in "subjective value." But is such a solution of the "vexed problem" possible? And if not, in what direction should an inquiry into the nature and rate of capitalist income proceed?

To one not altogether under the spell of the "economic man" and his utilitarian calculus, the first impression made by this theory is that of remoteness from all the more obtrusive facts of economic life. Does time-preference¹ have any real effect in the business of the world? We may admit that there are reasons for desiring to have goods at one time rather than at another. The professorial imagination has found no difficulty in devising occasions for comparing present with future utilities, for forming preferences and noting "time-values." But such mental exercises are of no importance, unless time-preference is a psychic state that actually enters into the transactions out of which interest grows; unless it plays a part in borrowing, lending, and investing.

Now whatever the mental states of the investor may be, they are not those attributed to him by the time-preference theory. That theory suggests a *postponement* of consumption, *i. e.* the consumption at some time of the capital which has been saved and invested. It formulates a comparison between a present quantity of consumable goods on the one hand, and an equal future quantity of goods *in addition* to the interest, on the other. But obviously, investors do not, as a rule, contemplate consuming their capital. The capital does not enter into both terms of the comparison between present and future sums. What

¹ Time-preference is defined by Professor Irving Fisher, *Rate of Interest*, p. 88, as the excess of present desirability of present goods over the present desirability of an equal amount of future goods.

the investor does is to compare the present or early consumption of, let us say, one thousand dollars worth of goods once and for all, with the later consumption of a permanent annual income of fifty dollars worth of goods obtainable without labor. There is a comparison, indeed, of consumable wealth or, if you will, of "psychic income," or utilities of goods; but it is of goods or income appearing under very different conditions. A relatively large temporary satisfaction of desires is given up; a permanent, unlaborious recurrence of a much smaller sum is gained. The permanent character of interest income, and the fact that it comes without labor on the part of the recipient, are, to the capitalist, the significant characteristics of the "future goods" he purchases by means of his present goods. In the case of the active entrepreneur, as distinguished from the capitalist-lender, the calculations of an investment are slightly different, but equally unfavorable to the time-preference concept. The entrepreneur also hopes to get an income as a percentage of his thousand dollars, but looks for a higher rate than the capitalist; he looks for what, following the usage of the classical economists, we may call "profits of capital." To him the important aspect of investment is the fact that it represents business opportunity. Neither capitalist nor entrepreneur, however, lets a future capital sum enter into comparison with present goods.

The purposes and calculations that lead up to and prevail in the process of investment are not those suggested by the theory under consideration. Time-preference is not consciously present. Indirect evidence, moreover, that estimates of time-value are not an important factor, may be found by considering the rates of interest on loans for different lengths of

time. If any part were played by a comparison of the utility or value of the capital sums loaned and returned, or of the goods these sums represent, then the longer the time intervening before the payment of the loan, the higher the *agio* or total of interest necessary as premium on present goods, or discount of the distant future goods. If the preference for present possession grew in direct ratio with the length of the loan period, a uniform annual rate of interest would be demanded for all loans of equal risk. A thirty year loan of one thousand dollars, for instance, would receive six times as many annual payments of fifty dollars, as a five year loan. But perhaps it may be argued that if time-preference governs the loan market, a prospect of payment at a very distant date would call for a higher rate of discount than a short period loan, that if a five year loan is satisfied with $5 \times \$50$, a thirty year loan would demand $30 \times \$60$; preference for present goods and sums growing at a greater rate than the time interval before the final payment. The facts of the loan market, however, do not fit either of the above suppositions as to the rate of growth of preference for present possession with increasing remoteness of future payments, and do not, therefore, fit the necessities of the time-preference theory. Instead of a rate of interest on long time loans equal to, or greater than, that on short loans, we usually have a lower rate, — evidence that an undisturbed annual income is desired, and not the return of the whole equivalent of the “present goods” invested.

Another weakness of the time-preference theory is its apparently necessary implication of an *exchange* of present against future goods. If no exchange of this kind can be demonstrated as part of the important

transactions in which the income of the capitalist arises, the conceivable influence of time-preference is too limited to afford the basis of a complete explanation of interest. Is there an exchange of this nature between the capitalist as lender, and the entrepreneur as borrower? The former gives present goods. The latter, however, does not consume them, but invests them in his business. Obviously, both capitalist and entrepreneur look for a future return. They share in the profit of capital, the capitalist, because free of risk and labor, contenting himself with a part of the profit known as interest. Interest is "commuted profit."¹ What is really given in exchange, therefore, is not consumable quantities of wealth of different dates, but different means and conditions of securing income. If there is an actual exchange of present for future goods, connected in any way with the capitalistic production of wealth, apparently it must be between entrepreneur and laborer. But no argument is needed to show that between these two parties there is no conscious bargaining over any difference in value due to the time that must elapse before goods become available for consumption. Was there ever a laborer conscious of a rate of time-preference? And was any such rate ever mentioned in the contest between trade-union and employer? It is a safe conclusion that in the wage-contract, the one business relation in which present goods appear to be given for future goods on a large scale, time-preference plays no perceptible part and that the fiction of an exchange of time-values leads to absurdities. It would appear, therefore, that the concept of time-preference with its necessary implications is not fruitful for the theory of interest. It may have some

¹ Hadley, *Economics*, p. 270.

value in the apologetics of the capitalist system, but for the scientific explanation of the source and rate of capitalist income, it has too little relation to the actual forces at work in the industrial world.

II

A partial concession to the bias in favor of economic analysis based on subjective factors is the abstinence theory as set forth by those who make it part of a dual explanation of interest, assigning to abstinence the regulation of the supply of capital, while demand is traced to other sources. As an account of the psychology of investment, it is not open to the same objections as the time-preference or *agio* theory. To some writers, it is true, the two theories seem indistinguishable. It is possible, however, to formulate the abstinence theory in such a way as to avoid the erroneous appearance of an exchange of a present capital (C), against a lump sum $C + i$ (i representing interest). The exchange may be taken to be that of C against a series — i, i, i, i — of regularly recurrent sums.

The theory has not escaped criticism. The doubts expressed by different writers as to whether the connection between the movements of the rate of interest, and the increase or decrease of saving and abstinence, is that assumed by this theory, have not been entirely disposed of. They make it appear at least questionable whether abstinence acts in such a uniform manner as to allow any valid generalization.

The objection that the large capital accumulations of the rich are subject to no cost of abstinence, was apparently met by limiting the significance of abstinence to the marginal saver. But this answer is not

conclusive. It was not proved by the adherents of the theory that abstinential savings are of sufficient amount to be in any way regulative of the rate of interest. No inquiry was made as to whether the capital that comes without abstinence may not, with its larger volume and more rapid changes, leave the tendencies and effects of abstinential savings a purely secondary movement, of imperceptible influence on the actual rate of capitalistic income. Nor can it be said that the conception of the rate of interest as a "supply price," inducing more or less marginal saving as it moves upward or downward, is essential to an understanding of how the rate is kept within certain limits. It may be held that the savings which rise and fall with the rate in such manner as to bring the interest rate to a point of equilibrium, are savings taken out of interest and profit, rather than out of wages and salaries. They rise and fall, not because of increase or decrease of inducement or "reward" held out to the saver, but because of an increase or decrease of the income out of which savings are made. Assume the standard of living to remain unchanged among the classes whose income is large enough to make saving habitual and continuous, and a change in the volume of saving easily follows a corresponding change in the volume of income. There is no searching of heart and of pocket-book to see whether some anticipated, tho uncertain percentage, offers sufficient reward for the pangs of abstinence. The dubious implication of the abstinence theory is that a little more or less of calculating abstention from consumption makes a great difference, and that the prime factor in bringing things to an equilibrium is a mental occupation with a future fact, *i. e.* with an *anticipated* reward. The moving fact, on the contrary,

is one that belongs to the past rather than to the future, the fact of increase or decrease of income. And the objective fact of increased or decreased income may exert a regulative effect on the supply of capital without involving subjective factors, *i. e.* without calculation of what is lost or gained by saving and investment. Let spending go on at a given rate, and saving¹ be what is left unspent. Then a rise or fall of money income means an equal rise or fall of this unspent residuum. It is not necessary, therefore, to refer to psychic factors, in order to arrive at a sufficient explanation of those regulative movements in the supply of capital which check the fluctuations of the interest rate.

Moreover the accumulations that come out of large incomes of profit and interest are the only savings which can change with sufficient rapidity and volume to be decisive. They are at once affected by every change in the rate of profit and interest, while the savings made with reference to an anticipated rate change too slowly to have any perceptible influence. The effect of the latter can at most be a tendency, — a tendency nipped in the bud by the effect of the larger and swifter volume of those savings which change merely because income has changed. It is, therefore, doubtful whether, except in periods of unusual stability of the interest rate, the prevailing rate is ever one that just compensates the marginal saver's cost of abstinence. And when this happens, it is not because the marginal savers have helped to make the rate what it is, but because they have adjusted themselves to existing conditions. It is evident, therefore, that the *induced* savings, those made with

¹ The word *accumulation* rather than the word "saving" should perhaps be used in this connection, as less connotative of thought and effort.

reference to a given rate of prospective reward, the savings which the abstinence theory places in the center of the stage, have so little influence on capital accumulation and the rate of capitalistic gain, that a general theory of interest is warranted in disregarding their existence. Even if the abstinence theorists have correctly analyzed their origin and action, — a matter of some doubt, — these calculated abstintential savings are, to the extent of their tenuous being, a mere epiphenomenon of our modern economic system. They are not of sufficient significance to find a place in a general theory, and contribute practically nothing to the determination of the existing rate of interest.

For the great accumulations of capital which rise and fall with the rise and fall of income, the prime factor or determinant of changing rates of accumulation is the amount of income out of which savings are made. In our description of these accumulations as an unspent residuum of income we have assumed, however, a certain quantity of expenditure or standard of living. This expenditure constitutes a limiting factor to the quantity of capital accumulation, and the abstinence theorist may argue that the establishment of such a standard of expenditure involves some comparison or calculation of the relative utility of spending and of saving. Now the occurrence of occasional meditations upon the relative utility of saving and of spending may be granted, and also their effect on the formation of a standard of living. But it is denied that for the class of savers under consideration the prospect of any given rate of return enters into the attractions of saving or accumulating capital. To be sure, expected returns of some kind on investment constitute an inducement to saving, a support of the habit of saving, a general reason for saving at

all. But that does not mean that different *rates* of prospective return directly determine the *amount* of saving. The implication of the abstinence theory, that prospective rates of return have this determining effect, has never been more than an unproved assumption. Moreover, such considerations of the attractions of saving as may affect the standard of expenditures are occasional, and do not come in response to every change in the rate of interest. It is legitimate, therefore, to regard the standard of living as a relatively fixed factor and to account for changes in the rate of capital accumulation as resulting primarily and directly from changes in the volume of income.

If the view just presented gives a substantially true picture of what takes place in the modern world of capital accumulation and investment, we need not look to the abstinence theory, nor to any theory based primarily on "subjective" factors, for an explanation of the rate of capitalistic income. It may be granted that there are subjective factors, and that theoretically they have some effect on capital and its rate of return. The direction and character of that effect are doubtful. But the obviously important facts are objective in their nature; and to these our attention may now be directed.

III

In studying the objective factors of the process of capitalistic production and distribution, we cannot escape consideration of the productivity theory of interest. It has taken on a great variety of forms, but in almost all cases it operates with a conception of capital as a group of concrete goods used as instruments of production. A number of objections have

been urged against it, the most serious being that the value of capital goods which it assumes as known cannot be determined independently of the rate of interest. In trying to account for the rate of interest, it moves in a circle. This objection has been stated so frequently and so well, that it requires no further discussion. Another weakness of the theory is its failure to take account of certain important interest-yielding investments. The entrepreneur expects to gain at least the rate of interest from all of his business outlays; not only from what he spends for "capital goods," but also from his expenditures for labor. The productivity theory, in restricting capital to concrete instruments and materials, says nothing about the interest earned by the employer's pay-roll. Its conception of capital is too narrow.

These shortcomings of the popular form of the theory raise the question whether the source of trouble may not be a failure to consider the fundamental character of capitalistic production. The restricted concept of capital limits the view to one segment of the long process of production. In asking what is added to the product by the use of a given capital good, the productivity theory fixes attention on one of the later stages of the process of production and fails to go back to the beginning of the process. It proceeds, in the language of Böhm-Bawerk, as if the capital had dropped from heaven. If, however, we broaden the concept of capital, and include every class of instrument connected with productive industry, and if we view the process of production not by detached portions, but as a whole, a productivity theory of any kind becomes impossible. In the view of the productive process as a whole, it appears that we have nothing before us but human labor acting

upon the physical world. There is no capital as a distinct productive factor. The investment of capitalist and entrepreneur, the use of capital regarded from the point of view of production, is nothing but a special way of applying labor, the "round-about," indirect, capitalistic way. And while nothing but labor is used, nothing is paid out by the entrepreneur in his business, nothing is "invested," that is not looked upon as capital. Entrepreneurs as a class, however, pay out nothing but wages.¹ It is only between members of the class of entrepreneurs, between those in control of the different segments of the process of production of any commodity, that payments are made for anything that is not labor. The purchase and sale of the products of labor, which, as "intermediate goods," are necessary in making consumable goods, are a purely intra-class affair. As such, these transactions are only a method of dividing up the investment and the gains of capital in an extended process. In a comprehensive view of the process of production, there are, therefore, no separate outlays for labor and for capital. How, then, can one distinguish a separate "product of capital"? How trace any such connection between product and the return of capital as would justify us in formulating a productivity theory?

IV

Our hasty examination of some of the most widely accepted theories points, in the main, to negative conclusions. Considerations of space forbid a review of other theories and variants of theories. But perhaps enough of criticism has been given to prepare for a consideration of the nature of the problem before us and the data necessary to its solution.

¹ Setting aside land rent and taxes.

To make income appear as interest, it must be expressed as a proportion or percentual rate. Profit of capital, too, is a rate. If it were not calculable in this form, the entrepreneur would not know what to bid, in his bargain with the capitalist, and the capitalist would be ignorant of the business value of what he had to offer. Let the rate of income (whether interest or profit) be represented by R , the income by I , the capital by C . Then

$$I = CR.$$

A fourth quantity of importance to the theory of interest, the gross income, is given in the equation

$$I' = I + C.$$

It will suffice to know two of the quantities given in the above equations, in order to calculate the remaining two. The theory of interest need not, therefore, explain the quantitative determination of more than two of the four quantities. These, however, must be calculated independently of the other two. To derive them by assuming one or both of the remaining values, and then to turn about and use them in accounting for the latter, would obviously be reasoning in a circle.

None of the theories so far examined has explained, or appears to be justified in assuming as accounted for, more than one quantity. That quantity is I' (the gross income), if taken in the sense of the product in the shape of consumable goods, of a completed process of production. Its physical amount is explained by reference to the technical conditions of production, and its value by the demand of the market. If, however, I' is to include the products of different stages of the productive process — producer's goods as well as consumer's goods — it cannot be accounted for without bringing in one of the other three values.

The productivity theory aims to explain R , the rate, by showing the relation between C and either I or I' . It must therefore account for the value of C , the capital, and at that point, as critics have shown, the theory breaks down. The time-preference and abstinence theories seek the origin of R in subjective conditions. But the time-preference theory gives a false view of the psychology of investment, and the abstinence theory, while suggesting factors which may have some influence on investment, fails to prove that those factors give a definite quantitative result, or, in other words, that they make R just what it is.

One other quantity besides I' (taken as the consumable product of a completed process) must be found. The attempts to find an independent origin for R have failed, and no way has been suggested of computing I without the introduction of either C or R . The theory of the income of capital must, therefore, show the quantitative determination of C . No other course is left. With C determined, as well as I' , the minimum of data needed is given. But C must be determined independently of I (the income), and of R (the rate). Furthermore, as there appears to be no way of deriving C from I' except by a not permissible use of either R or I , we may say that it is a necessity of theory that capital (C) be accounted for independently of the other values with which the theory of interest and profit has to reckon.

What is capital? If we view the production of any kind of consumable good as a whole, and disregard its segmentation into particular industries, we see that what entrepreneurs and capitalists, as a class, invest is just wages, nothing more. If capital be taken to mean simply wages, and wages can be shown to be determined independently of income of capital,

rate of profit or interest, and gross income, our problem is solved. In view of the impossibility of securing the data necessary to a complete theory in any other way, it would appear worth while to try the concept of capital as consisting of the total of wages and see where it will lead.

To the thought that wages are determined independently of the gross income, the product of labor, objection may be made from the point of view of the widely accepted productivity theory of wages. It may be maintained, however, that while the price of labor is indeed determined by its productivity, the labor whose product determines the level of wages, is not labor which is *employed* in capitalistic industry. The entire supply of labor of all countries in communication with the world's market needs to be considered; not only labor employed by capital but also labor which is only potentially a supply to the capitalist-entrepreneur or competes with the labor that is part of such potential supply. It is not necessary nor in keeping with the methods of economic theory, to hold to a productivity theory of wages which makes it appear that we have the labor supply of capitalistic districts only to reckon with. The price of labor is determined by its product not at the margin of employment, but at the margin of opportunity, the margin open to non-capitalistic free labor. If it were the product of employed labor only that determined wages, it would be necessary to assume a rate of interest to get at the rate of wages. The employer could not afford to pay more than the discounted value of the product to the laborer. But interest or discount, we are trying to show, grows out of the difference between value of product and price of labor.

It does not determine wages, but is determined by wages. It is necessary, therefore, unless we are willing to accept some explanation of a rate of interest based on subjective grounds, that we account for the price of labor independently of the rate of interest, or of the product of capitalistic industry. If we view the productive process as a whole, instead of taking it by segments and designating the intermediate products of labor as capital, it appears very clearly that we are driven to a choice between two theories of *residual* income. Either we must show the rate of interest as determined by subjective factors, by calculations of the cost of abstinence or waiting, — in which case the wage-earner is the residual claimant, — or we must find an independent explanation of wages, in which case profit of capital can be accounted for as residual income.

Now as regards the price of unskilled labor, the determining factors are the conditions of life and work of the classes from which capitalistic industries recruit their industrial armies, the peasantry and handicraftsmen of the old world, and the potential frontiersmen of the new. What are the conditions of land ownership and opportunities of getting land? What the quality and location of land accessible to peasant or pioneer? What the legal and social institutions of countries just emerging from precapitalistic conditions and customs? Such factors as the enclosure of common lands, the assertion of feudal privileges and political oppression, the ruin or persistence of handicrafts, together with factors affecting the ease or difficulty of transportation to the scene of capitalistic industry or away from it to a frontier of free land, have been at different times and places the important forces determining what supplies of labor, and at what price, could be obtained for factory,

mine, and railroad. On the whole, the price that must be paid is determined by a standard of living that has grown out of the economic opportunities of those rural and non-capitalistic districts and occupations from which new supplies of labor are drawn. In these districts and occupations the productivity of labor and the standard of living have come to an equilibrium, determining thus the average income of the classes from which come the new recruits for capitalistic employment. The wage that needs to be paid to secure such labor is equal to that income, with possibly enough in addition to pay cost of transportation and to create a sufficient inducement for the necessary change of occupation and residence. In such manner the price of unskilled labor may be accounted for. For work of higher grade the capitalist must pay the wage of unskilled labor plus the expenses of rearing and educating a more specialized or a more intelligent type of man or woman. According to this view, unskilled labor is the source of supply of skilled labor. In the long run, it is not the productive value of high grade labor that determines its reward, but the cost of unskilled labor and of converting unskilled into skilled labor. The price of unskilled labor, therefore, is fundamental to the determination of wages for all grades of employment. From the point of view of capitalistic industry, it is cost rather than utility to purchaser that determines the price of labor. In other words, the standard of living, determined for unskilled labor by conditions outside of capitalistic industry, enters as an independent factor into the determination of the wages paid in capitalistic industries. The price of labor is, therefore, determined independently of the rate of profit and interest, and of the productivity of the capitalistic process. Capital,

in the form of wages, being thus independently determined, the return to capital in profit and interest may be explained as a residual income.

By using expensive, "round-about" processes and methods of utilizing natural forces, not accessible to the laborer because of his ignorance and poverty; by organizing, disciplining, and driving laborers to greater effort than they will or can put forth when working by and for themselves, — capitalistic industry produces a surplus, a value in excess of what is paid out in wages. The wages paid constitute the capital invested, if we regard industry as a whole. The surplus product is profit of capital plus land rent. Setting aside rent as the differential income of superior land, this surplus, as profit of capital, can be stated as a percentual rate of the sum paid out as wages. How this rate is divided between capitalist and entrepreneur, establishing a rate of *interest*, as distinct from this rate of profit, we need not consider at present. It is not a problem that presents insuperable difficulties.¹ The crucial problem is the rate of profit.

This theory of profit makes the productive advantage of the capitalistic process appear as an important source of profit and interest, yet cannot properly be called a productivity theory. The surplus of product left after wages are paid, which constitutes profit, while largely due to the technological advantage of using capital, can in part be traced to other sources. Some of it is due to the knowledge and energy of those organizing industry. Some also to all those forces, whether operating within or without the sphere of capitalism, which keep down the standard of living and narrow the economic opportunities of non-capital-

¹ A very satisfactory account of how the rate of interest is established can be found in Hadley's *Economics*, p. 269 ff.

istic labor.² Nor does it follow that the entire technological advantage will go to capitalist and entrepreneur, and that the laborer may never have a share in it. Some of the surplus may be used to lure labor into the capitalistic system. Some may go to labor when a strong union seizing a temporary advantage drives a hard bargain. Some goes to skilled labor which has been reared within capitalistic districts and which outside of capitalistic industries could look for no return whatever.

The title of productivity theory would not fit the the views here set forth. Nor would the term exploitation theory be any more appropriate, altho it is suggested that interest grows out of a portion of the product of labor withheld from the laborer. The term exploitation carries an ethical connotation which it would have been well to keep out of economic theory. Whether there is the moral wrong of exploitation at the source of capitalistic income is a question outside of the scope of economic investigation. It is not probable that the purely economic theory of distribution can contribute more than a small part of the data necessary to a judgment upon the present social system as a whole, and of the ethical status of the income of capital in particular. We are taking a small and inadequate view of the problem raised by socialism, if hopes or fears of settling that problem give any bias to our thought in the study of the theory of interest and profit. It is desirable, therefore, if a name must be given to the theory here set forth, to find a term without ethical flavor. Such a safe, colorless term, one properly applicable, is that of

² Loria and Oppenheimer have especially emphasised conditions of land ownership as the source of capitalistic gain. See a good summary of Loria's writing by Rabbano in *Political Science Quarterly*, vol. vii. Of Oppenheimer's writings see especially his *Grundelgentum und Sociale Frage*, 1898.

residual-claimant theory. It is the name which has been given to the theory of profit on capital of Ricardo and Marx, with which our theory is in substantial agreement.¹

V

Altho it is intended merely to indicate a possible theory of profit, leaving amplification and defense of the theory suggested for another occasion, it will be well to consider briefly three questions suggestive of objections to the theory here advanced. (1) What is there to prevent excess product due to capital from bringing about a fall of values which would extinguish profit and interest? (2) What keeps labor from demanding and obtaining all that it produces? (3) How is the surplus value growing out of a series of processes, under the control of different entrepreneurs, distributed as a fairly uniform rate to every part of the investment made by each entrepreneur, and not to the sums paid out as wages alone?

To take up the first question: why does not the surplus value including profit and interest disappear in a fall of prices? How can the profit be kept from the "consumer"? There is here suggested the objection sometimes made to the productivity theory of interest, that it does not show how the capitalist can keep his "product of capital" from lowering prices till interest disappears. This apparent difficulty is by some writers made the occasion for bringing in the cost of abstinence as a necessary check upon redundancy of capital and capitalistic production. The objectors, however, fall into the common error

¹ See Hollander (The Residual Claimant Theory of Distribution, in *Quarterly Journal of Economics*, February, 1903), who applies the name to the theory of Ricardo. In the third of a valuable series of articles on "Wertrechnung und Preisrechnung im Marxschen System," in *Archiv für Sozialwissenschaft* 1907, Bortkiewicz suggests the name "Absoluttheorie" for the theory of Ricardo and Marx.

of thinking of but one industry at a time. Excess of product in one industry might indeed bring about a "ruinous" fall in value. A general fall of values, however, is impossible. Moreover the objection that profit and interest will be surrendered to the "consumer" unless product is in some way limited, rests on an erroneous conception of the status of the consumer. When we look at things, not from the point of view of a single industry, but of the industrial system as a whole, it is obvious that the "consumers," the purchasing public, are not a class distinct from the "producers," nor an independent factor governing value. The purchasers or consumers are the capitalists and laborers of the productive process. As long as the laborers do not receive the whole sum of money and credit possessed by capitalist and entrepreneur, as long as the latter retain something for themselves, this something added to the purchasing power in the hands of the laboring class will keep the total of prices of commodities above the total paid out as wages. The sum of prices cannot extinguish profit of capital by falling to the sum of the outlays for wages. As long as the capitalist and employer are not obliged to surrender everything to the employee, profit and interest will continue.

But may profit of capital throughout industry as a whole be made to disappear by a rise of wages? This is the second objection our theory must meet. Why does not labor obtain the entire product? As long as the value of the product is in excess of the wages paid, would it not be profitable to employ additional labor? Would not this be kept up until, in every industry, wages equalled the marginal product, leaving only a differential profit on the more produc-

tive investments, but no profit or interest at the margin? In answer to these objections, it may be said that as long as the supply of capital and opportunities for employing labor, in such manner as to yield an excess over what non-capitalistic labor can produce, are not sufficient to employ or have not yet employed the world's entire supply of labor, wages can be kept down to a point near the amount which non-capitalistic labor can produce and there will be consequently a profit for capital in the shape of a surplus of product over wages. Because of the potential competition of non-capitalistic labor, the laborer employed in capitalistic industries cannot wrest that profit from his employer.

The conditions under which profit of capital arises are shown in the following diagrams.

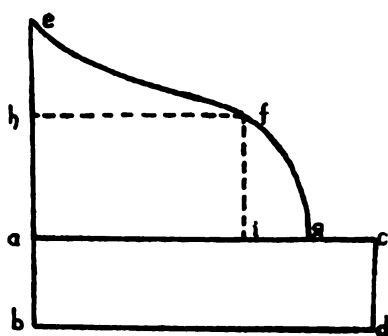


FIG. 1.

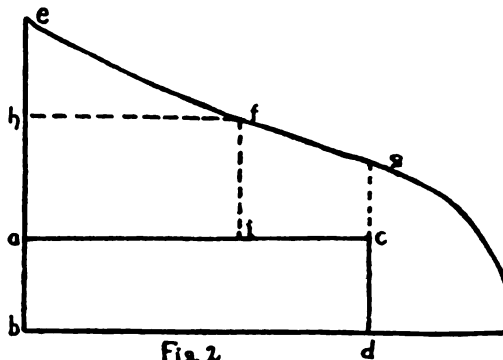


FIG. 2.

In each figure let cd represent what non-capitalistic labor receives as income, and bd (or ac) the world's supply of labor, assuming a uniform grade of labor in order to simplify the argument. If labor employed by capital were paid exactly what non-capitalistic labor gets, the parallelogram $abcd$ would represent the total income of the laborers of the world (not the total of wages). Let the curve efg in each figure

represent by its distance from the line bd what could be produced by capitalistic methods if applied. Distances from the line eb represent quantity of labor. The shape and elevation of this *capitalistic opportunity curve*, as we may call it, is determined by quantity and quality of no-rent land accessible, by the state of knowledge of physical forces, and by the devices for controlling and directing labor.

In Figure I the opportunities of capitalistic industry are not sufficient to employ the entire population of the world, in Figure II more than sufficient. Whether, however, the existing opportunities be fully used or not, will depend on the supply of capital. If the supply is such that only hf of labor can be employed, there will be a surplus of product over what labor is paid equal to fi without the slightest possibility of labor securing this surplus.

If the supply of capital is just sufficient to exploit all capitalistic opportunities, the results will vary according to the shape of the capitalistic opportunity curve. Under the conditions given in Figure I, if the supply of capital is sufficient to employ ag of labor and that amount of labor can be secured, marginal product and wages would coincide, leaving no interest or profit for capital. But might not profit disappear even before ag of labor is employed? Would not the marginal product of labor in capitalistic and in non-capitalistic occupations become equalized by capital drawing in labor from outside until the product under employment equalled the wage necessary to attract it, while this necessary wage in its turn would be increased by the increase of marginal productivity of non-capitalistic occupations brought about by the withdrawal of labor to capitalistic employment? To illustrate this objection by a diagram, Figure III, we

may suppose the income of non-capitalistic labor to be raised from cd to kd . Then profit would disappear when jl , an amount of labor less than ag , was employed.

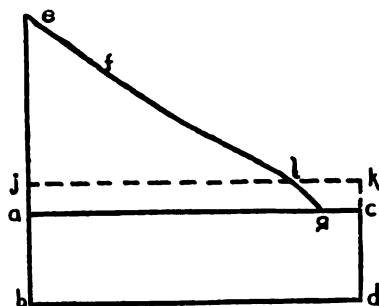


FIG. 2.

This objection assumes a degree of mobility of labor which obviously is not to be found. Geographical differences of income and wages persist, such as would be impossible if perfect mobility and response to economic motives existed everywhere. It is not certain, therefore, that capital could attract labor enough to carry employment to the point of vanishing profit. Moreover, it is highly improbable that capital would be invested when returns to capital disappear. It appears more likely that the declining rate of profit would result either in a vigorous and successful search for increased capitalistic opportunity or that capital would be consumed in unproductive activities or used in speculation. On the other hand, it is doubtful whether in the long run the withdrawal of labor from non-capitalistic regions can considerably increase marginal productivity at those points. Where a class lives under conditions of long-established social inferiority and isolation, an increase of income is not made permanent by a corresponding rise in the standard of living, but forms only the temporary occasion

and opportunity for earlier marriages and a higher birth rate. There appears to be, therefore, a considerable number of circumstances that keep the product of labor employed by capital above the wage which must be paid to that labor.

The conditions represented by Figure II are instructive, even tho they have not yet been and possibly never may be realized. The opportunities for capitalistic enterprise in this case are such as would make possible the employment of more than the world's entire supply of labor. Now if the supply of capital were sufficient to employ the entire working population and employment had proceeded to that point, leaving no non-capitalistic labor in the world, *gc* would be the marginal profit *provided* that labor would still be content to receive only *cd*. But there would be no non-capitalistic labor to keep down wages. Entrepreneurs, if competing, might drive up wages until marginal profit was threatened, but would probably see the folly of competition and form employers' agreements. Labor if organized could demand the marginal rate of profit and possibly even more. It may seem idle speculation to refer to hypothetical conditions, never yet realized in human history. But the writer has no intention of entering the field of prophecy. The hypothetical case is introduced only for the purpose of suggesting by contrast the conditions under which profit of capital exists. It indicates that if discovery and invention should ever create capitalistic opportunities so great that the quantity of labor which might be employed would be in excess of the existing amount of labor, and if capitalism should ever extend geographically so as to bring all the world's population under its sway, then the system of wage-labor and profit on capital, at least as we

know it, would come to an end. How profit could be kept out of the hands of labor under such circumstances is not apparent. Profit and interest are possible because capitalism is geographically limited and because neither capitalistic opportunity nor capital is sufficient to employ the working population of the world. And as against adherents of the abstinence theory, who would object that it is reluctance to undergo the cost of saving which limits capital and makes possible a marginal return, it may be urged that what we have called capitalistic opportunity is of vastly greater import than the attitude of any class toward the exercise of abstinence. When capitalistic opportunity is increased, we can be certain that accumulation of capital will follow easily from the enhancement of profit. If capital has not yet grown so far as to extinguish profit, it is because of insufficient capitalistic opportunity. An incomplete development of technology, of managerial ability and enterprise, and whatever barriers there are to the geographical extension of capitalism, have made the continuance of profit of capital and interest possible. In other words, it is the imperfect development of capitalism that makes capitalism possible.

The third difficulty which must be met by the theory here advanced is that suggested by the question as to how the surplus product growing out of a series of processes under the control of different entrepreneurs is distributed as a fairly uniform rate and assigned to each entrepreneur's investment and, moreover, to every part of it and not alone to the sum paid out as wages. Apparently a rate can be calculated only by the summation of the incomes of all the capitalists and entrepreneurs and the estimation of this sum as

a percentage of the total paid out as wages. But how is one to proceed from this rate to a rate assigned to every part of the investment, to machinery, buildings, as well as to the sums paid as wages? As a matter of fact, the rate of total profit is purely theoretical. The gain to capital which arises as a surplus of total product over the total of wages is a quantity not estimated by any one as a percentual rate. It is a quantity, however, for which entrepreneurs engage in a struggle and out of this struggle arises an average rate of profit which coincides with the theoretical rate of total profit.

If the entire process of making any given commodity, including the production of all material and instruments entering into the product, or used up in the process, were controlled by one entrepreneur, whether an individual, a partnership, or a corporation, it would be possible to state total returns above wages as a percentual rate upon wages regarded as the investment. Usually the process is divided up among different entrepreneurs, and among these the return, in excess of wages, is divided roughly according to the extent of their investment. If the entrepreneurs of the earlier stages of the process of production seek unusual gains at the expense of those in the later stages, the latter can threaten to make themselves independent of the former by undertaking to produce for themselves the materials and instruments they may need. Or they can encourage competitors of a more reasonable frame of mind. In like manner the entrepreneurs of the earlier stages can defend themselves against those of the later. Thus, through bargaining and competition, a rate of profit becomes established for any given industry. By movements of capital from one industry to another, the rate is equalized through-

out the industrial system.¹ This equalized or average rate of profit is, of course, only a theoretical approximation to actual conditions, a static goal never fully attained in this dynamic world. The sums invested are given a share in the returns, according to the time at which they enter the investment. In other words, the rate assigned makes allowance for the time element, and is calculated and compounded according to a custom established before modern capitalism itself.

The solution of the problem of profit of capital and interest given above, assumes the existence of interest and capitalistic calculation. What the historical origin of interest may have been, how such an income was possible before the modern machinery of production, and why it was estimated and compounded at a time rate, are questions we need not seek to answer. The theory aimed at in all of the foregoing discussion applies to the modern era alone and may, therefore, assume as given such factors as have been transmitted from pre-capitalistic times. Moreover, the method followed in this study, the method of "theory," taking its premises from conditions now open to observation and not from the historical past, must of necessity submit to such limitations. It can reveal the forces at work in the present and the conditions of their continuance. It can make no pretence of throwing light on the whole course of the evolution of economic institutions whose birth has preceded our historical era.

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¹ Compare Ricardo, *Principles*, ch. IV, and Marx, *Kapital*, vol. III, especially ch. X.

THE FIRST DECADE OF THE SWISS FEDERAL RAILWAYS

SUMMARY

Discussions of the nationalisation of railways in Switzerland, 342. — Arguments advanced in favor of nationalization, 343. — Conditions of employment on the federal railways, 346. — Organisation of the management of the federal railways, 347. — Government rate making, 352. — Improvement of the service, 354. — Financial results of government ownership, 356.

“In Switzerland, where the government has sought to please all the people by lowering rates, increasing facilities, and raising wages, the railways which were doing well under corporate management show a deficit after ten years of governmental administration”; and “have become a drain upon the tax-payers.” So writes Mr. Logan G. McPherson in his recent book on *Transportation in Europe* (pp. 200, 172). Mr. Carl S. Vrooman, on the other hand, in his equally recent book on *American Railway Problems in the Light of European Experience* (p. 166), declares that “during the short period of eight years of actual government management considerable real and substantial progress has been made. Rates have been lowered, wages raised, hours of labor shortened, the service improved, and at the end of sixty years or thereabouts, the people will be the proprietors of their railways, which actually will have paid for themselves out of profits.” The conclusions reached by these two writers are noteworthy. Both are trained investigators, and both are conscious of their responsi-

bility to the public for the reliability of their facts and the reasonableness of their conclusions. In the face of such a clash of opinion an independent examination of the evidence seems in order.¹

The law for the repurchase of the steam railways of Switzerland by the federal government was passed by the Federal Assembly October 15, 1897, and accepted by the people February 20, 1898, by a vote of more than two to one (386,634 to 182,718). There were then five main lines of steam railway in Switzerland, the Central, the North-Eastern, the United Swiss, the Jura-Simplon, and the St. Gothard. The negotiations for the completion of the purchases were protracted by the refusal of the companies to accept the terms originally offered by the federal government. The dispute was carried into the courts, and finally determined by two decisions of the Federal Court, January 18-21, 1899, and July 18-19, 1899. The next two years were devoted to concluding the arrangements with the companies, and to perfecting the organization of the federal railway administration. The *Generaldirektion* of the federal railways met for the first time on July 1, 1901, when it took over the duties of the board of directors of the Central railway. It assumed the active management of the Central and North-Eastern lines on January 1, 1902, of the United Swiss on July 1 of the same year, of the Jura-Simplon on May 1, 1903, and of the St. Gothard on

¹ Public Documents relating to the Swiss Federal Railways are: -

1. Bericht des eidgenössischen Eisenbahndepartements über seine Geschäftsführung im Jahre - (annual).
2. Bericht und Antrag des Verwaltungsrates der schweizerischen Bundesbahnen an den schweizerischen Bundesrat betreffend das Budget der schweizerischen Bundesbahnen für -, zu Händen der Bundesversammlung (annual).
3. Bericht der Generaldirektion der schweizerischen Bundesbahnen über die Geschäftsführung und die Rechnungen des Jahres - an den schweizerischen Bundesrat zu Händen der Bundesversammlung (annual).
4. Statistische Tabellen. Beilage zum Bericht der Generaldirektion (annual).
5. Rechnungen für das Jahr - (annual).

May 1, 1909. The beginning of Swiss federal railway management may therefore be dated from July 1, 1901, altho the government was not in a position to put its policies into general effect until two years later.¹

From the beginning the Swiss experiment in government ownership and operation of railways has interested the students of the railway problem. The early discussions of the nationalization of the Swiss railways shed little light, however, on the general issue of public ownership. Writers on the subject could do little more than speculate upon the success or failure of the federal railways, or narrate the events comprising the process of nationalization with varying sympathies according to their respective temperaments.² As the first decade of the Swiss federal railways approaches completion, the evidence bearing upon the record of governmental management becomes more instructive.

Probably the fairest procedure for determining the measure of success obtained by the Swiss government in the railway business is to ascertain first what it aimed to accomplish. The arguments advanced by the Federal Council in advocacy of public ownership were as follows.³ 1. The desirability of consolidating the independent railway lines of Switzerland in

¹ The best accounts of the events leading up to repurchase, of the popular discussion of the proposal to repurchase, and of the negotiations with the companies and the inauguration of governmental management, respectively, are: G. Keller, *Der Staatsbahngedanke bei den verschiedenen Völkern*, Bern, 1897; H. Micheli, *Le Rachat des chemins de fer en Suisse*, *Circulaire du Musée social*, No. 18, le 25 mai, 1898 (translated by J. Cummings and published in *American Economic Association Studies*, vol. III, pp. 349-420, 1898); and P. Weissenbach, *Die Durchführung der Verstaatlichung in der Schweiz*, *Archiv für Eisenbahnwesen*, vol. xxvii (1904), pp. 1259-1327, and vol. xxviii (1905), pp. 105-156.

² Cf., e.g., Henri Haguet, *Le Rachat des chemins de fer suisses et ses conséquences*, Paris, 1902; and Edgard Milhaud, *Le Rachat des chemins de fer*, Paris, 1904.

³ *Botschaft des Bundesrates an die Bundesversammlung betreffend den Rückkauf der Eisenbahnen vom 25. März, 1897*. This message constituted the platform and campaign handbook of the advocates of public ownership prior to the referendum election in February, 1898.

order (a) to save the expenses of the superfluous company and general managers' offices, (b) to secure the advantages of monopoly and organization on a larger scale in equipment and maintenance of way, and in operation and the security of traffic, and (c) to improve the local service by the more generous employment of the profits on the profitable portions of the business for the extension of the service into less profitable places. 2. The reduction of fixed charges by the substitution of the credit of the government for that of the private companies. 3. The application of net profits to the amortization of capital until the entire railway system should be owned clear of debt, thus eventually making possible a great reduction of rates (France, Germany, and Austria, it was believed, would be in a similar position by the middle of the twentieth century). 4. The abolition of discriminations of all kinds, and the establishment of uniform and just rates (the message intimated that the lowest rates for each class of traffic then in force on any private road would be extended to all the roads to be acquired by the federal government). 5. The more effective representation of the interests of shippers and of the travelling public as opposed to the interests of stockholders in railway management. 6. The improvement of the conditions of employment of the employees (a) by standardizing the various wage scales and labor regulations (the Federal Council intimated that the highest wage scales in force on any of the roads to be acquired would be extended to all the roads to be acquired), (b) by better enforcement of federal labor legislation than was possible while the lines were under private management, and (c) by maintaining superannuation and other benefit funds on a sound and liberal basis. 7. The elimination of

foreign influence from the management of Swiss railways (apparently in at least three of the leading roads foreign stockholders then held a controlling interest, and such control, in the opinion of the Federal Council, was politically dangerous).

The message of the Federal Council was tinged with a strain of sentiment. There was some appeal to the national pride, which ought to insist upon the popular management of those affairs which are of prime importance to the safety and well-being of the commonwealth, and to the national prejudice, which ought not to tolerate the threatened control of Swiss domestic commerce by aliens. But in the main the Federal Council founded its case upon sober calculations of lower rates and additional facilities for shippers and travelling public, of improved conditions for railway employees, and of better management generally. The arguments of the Federal Council were tersely summed up by a sympathetic American writer.¹ "The nationalization of the Swiss railroads," he writes, "was inevitable, a natural fruit of the spirit of democracy"; but the "direct efficient cause" was "business opportunism."

Let us now consider the results of this policy of "business opportunism." In the first place, the political dangers of the alien control of Swiss domestic transportation, whatever they may have been, were definitively removed. So much nationalization accomplished. Much of the purchase money, to be sure, was borrowed abroad on the credit of the government, but foreign bondholders and foreign stockholders are not of the same genus. The Swiss people by the nationalization of their railways not only assumed the responsibility but obtained the power to manage

¹ H. D. Lloyd, *A Sovereign People*, p. 171.

them in the interests of Swiss shippers, travellers, and railway workers. After nationalization, there could be no danger of the exploitation of the Swiss people as a whole. The only possible danger would be that of the exploitation of one class of the people by another. The general public in its political capacity might exploit the railway workers by denying them just compensation and conditions of employment; conversely, the railway workers, by gaining an improper influence over the government of the day, might exploit the general public by obtaining excessive wages at the cost of reasonable rates of transportation. In fact the relations between the state employer and the railway workers have been singularly harmonious and free from friction. The workers have never struck, nor even threatened to strike. The government, on the other hand, has always maintained its authority, and, while treating its employees with liberality, has never given them more than could be publicly shown to be their due.

The conditions of employment on the federal railways were regulated by the laws of June 29, 1900, and December 19, 1902. The various grades of employees were classified, and maximum and minimum rates of pay were prescribed for each class. The highest rates paid on any of the private roads were adopted as the minimum rates for the corresponding classes of the federal service. The new rates went into effect May 1, 1903, and each third year thereafter the pay of every employee who had served through the preceding three years was to be increased by three hundred francs until the maximum for the class should be reached. An eleven-hour day was established (which is less than the usual Continental European working-day), with the further provision that every train-

crew should have at least ten hours of unbroken rest in each twenty-four, and all other employees at least nine hours. More liberal provision than had previously been the rule was made for a weekly day of rest and for annual vacations. The common laborers shared in the improved conditions of employment, but the most highly paid administrative officers suffered, since in view of the salaries paid to other officers in the service of the federal government, it was not possible to continue the fancy salaries sometimes paid by the private companies to favored officials. These changes, the improved conditions of employment even more than the higher wages, tended to increase the operating expenses of the federal railways; but they had been practically promised in advance, and their probable cost had been reckoned with by the advocates of nationalization.¹

The labor policy of the Swiss railway management is revealed by the conduct of the employees when the pressure of the recent increase in the cost of living began to be felt. The standard wage scale was established upon the basis of the general level of prices and wages in 1899. Since then the rise in the general level of prices has been world-wide. According to Calwer's index number, which most adequately portrays the monetary situation in Switzerland, the rise in the cost of living from 1899 to 1907 amounted to 17½ per cent. The highest rates of wages in effect upon the private railways (which were the basis of the governmental rates) had been established in 1896 and the rise in the cost of living since then amounted to over 27 per cent. The men began to complain, respectfully, but during 1906 with increasing vigor.

¹ Cf. Botschaft des Bundesrates an die Bundesversammlung betreffend die Arbeitsverhältnisse der Bundesbahnen vom 1. December, 1899.

The government, when confronted by the men with family budgets and other pertinent evidence of the fall in real wages, recognized the justice of their claims, but wished to postpone the revision of their wages until a general act could be prepared that would apply to all federal employees. In December, 1906, the Union of Postal, Telegraph, and Customs Officials, the Union of Swiss Transportation Laborers, and the Union of Swiss Transportation Officials simultaneously petitioned the Federal Assembly for a special supplement to their regular wage during the year sufficient to compensate them for the increase in the cost of living. The Federal Council ultimately recommended that each married employee and each unmarried employee with persons dependent upon him for support, earning less than 4000 francs a year, should receive a supplement to his annual earnings of 100 francs; and that all other employees earning less than 4000 francs should receive 50 francs. The Federal Council took pains in its message to the Assembly to remark on the courteous tone of the employees' petitions and the reasonableness of their request.¹ The payment of this "high-prices-increment" was repeated in 1907 and 1908. In 1909 the scope of the extra payment was extended, and finally a law of June 23, 1910, revised the classification of railway employees and established a general and permanent increase of wages.²

This incident in itself is not perhaps of great importance, but it illustrates the good understanding that prevails between the railway management and

¹ Botschaft des Bundesrates an die Bundesversammlung betreffend die Bewilligung eines Spezialkreditcs behufs Ausrichtung von Teuerungszulagen für das Jahr 1906 an die eidg. Beamten und Angestellten vom 2. April, 1907.

² Botschaft des Bundesrates an die Bundesversammlung betreffend die Besoldung der Beamten und Angestellten der schweis. Bundesbahnen vom 25. October, 1909.

its employees. The influence which the latter exert in order to bring about an improvement of their conditions of employment has no unhealthy effect upon Swiss politics. It is not so strong as to subordinate the good of the service to their private advantage, and yet strong enough to secure the prompt recognition of their just claims. Nor has governmental management brought with it an extravagant over-manning of the roads. The rate of increase in the number of employees on the federal railways up to the end of 1908 was less than the increase during the same period on the St. Gothard, which remained under private management until the following year, altho the rate of development of traffic was greater on the federal lines than on the St. Gothard. The total number of employees at the end of 1909 was 34,575, and there is absolutely no evidence of "politics" in the management. Suitable provision is made for insurance against sickness and accident, pensions are provided in the event of chronic infirmity or old age, and the organization of labor is provided for by the management itself. Thus public ownership has brought with it the adoption of methods that recognize the mutuality and solidarity of labor, and convert the craving for combination and mutual support, so characteristic of modern wage-earners, into a productive asset.

The management of the Swiss federal railways was organized expressly with a view to enabling representatives of Swiss shippers and the travelling public to participate in the conduct of affairs. The plan of this organization was worked out in advance of nationalization, and set forth in the message of the Federal Council of March 25, 1897.¹ The popularity of the

¹ The law of October 15, 1897, regulating the organization of the administration of the Swiss federal railways, is translated and reprinted in full in Vrooman, *American Railway Problems*, appendix 4. See also, W. Exner, *Studien über die Verwaltung des Eisenbahnwesens mitteleuropäischer Staaten*, Vienna, 1906, pp. 43-61.

plan was undoubtedly one of the leading factors in the victory of the policy of public ownership. It was desired that the administrative organization should be made independent of political influence and yet that it should be so closely connected with the government that there would be no danger of its becoming a state within a state, a body that might come into conflict with the government itself. Hence the administration of the federal railways forms a separate division of the federal administration, and the finances of the railways are entirely disconnected from the finances of the Confederacy. The supreme railway authority is the Federal Assembly, which has cognizance of the following matters: the ratification of plans for the construction and acquisition of new railways, and of loan operations and plans of amortization, the sanctioning of the classification of employees and of the fixing of schedules of wages, and the approval of the annual budgets, and of the annual accounts and reports of operations. The general control of the management is entrusted to the Federal Council, which prepares all business requiring definitive action on the part of the Federal Assembly, executes the policies of the Assembly, and appoints the members of the *Generaldirektion*, and of the district directories, and the government members of the federal administrative council and of the district administrative councils. The general directory has charge of the employees and the actual operation, and prepares plans and reports for submission to the administrative council. The administrative council scrutinizes the accounts, examines the annual statements, and approves the draft of the railway budget. It has charge of the freight and passenger tariffs and classifications, approves the general plan of train schedules,

adjusts the relations with other lines, regulates competitive traffic, and renders final decision in regard to construction and additions, both of plant and of equipment. Under these are the district directories and administrative councils for the five districts into which the federal railways are divided.

The feature in the plan of organization to which it has owed much of its popularity among shippers and the general public is the administrative council. This is composed of fifty-five members, twenty-five of whom are chosen by the Federal Council, a like number by the cantons and half-cantons, and five by the district councils. The latter in practice are usually the presidents of the five district councils. The others are chosen with due regard to the interests of agriculture, industry, and commerce, respectively, for terms of three years. The Federal Council proceeds to the election of its quota only after the cantonal and district council elections have been made, and not more than nine of the twenty-five federal appointees may be members of either branch of the Federal Assembly. The district councils consist of fifteen to twenty members, four of whom are chosen by the Federal Council, and the others by the cantons within the district, with due regard to the representation of the various economic interests. The members receive annual passes and a *per diem* for their actual time devoted to the public service. This system of councils was probably suggested by the analogous railway councils, created by von Maybach for the Prussian state railways, which have worked so well in Germany.¹ The district councils meet quarterly, the administrative council monthly. The record of busi-

¹ Cf. A. N. Holcombe: *Public Ownership of Telephones on the Continent of Europe*, ch. 2.

ness transacted by the councils is published every year. Thus thoro publicity is combined with the representation of the interests of shippers and the public in such a way as to lead the patrons of the railways to feel that those who pay the rates have a share in the responsibility for their making, and that those who use the railway facilities have a voice in their creation. Neither fiscal exploitation on the part of the federal government, nor personal or local discrimination in favor of privileged interests, can well occur under such a system of management. The security for reasonable rates, in the sense of rates calculated to promote public rather than private interests, seems better than under any possible system of private management. At any rate this mode of organization has given uninterrupted satisfaction to the Swiss people.

As soon as the government had gained control of a sufficient number of lines it proceeded to fulfil its pledges with regard to rates.¹ The principles of the revision of rates were laid down in a message of the Federal Council to the Federal Assembly of November 17, 1899. The fundamental principles of the revision were the standardization of the various schedules in effect on the private roads, full publicity of rates, ample notice of changes, and the coöperation of shippers and railway management in the making of rates. With the latter object in view, the federal railway department sent out copies of the preliminary draft of the revised schedules to the various shippers' associations, — the Swiss *Handels- und Industrieverein*, the Swiss *Gewerbeverein*, the Swiss *Bauernverband*, and the Swiss *Eisenbahnverband*. All these associations cordially responded to the railway department's in-

¹ Law of June 27, 1901.

vation to hand in their criticisms of the proposed schedules. The schedules were finally considered by the Federal Assembly, and enacted to go into effect May 1, 1903, on the four main lines then in the hands of the government. The law provided an elastic process of rate making for service in the future. Increases or cancellations of rates require three months' advance notice, but the period may be shortened, if material reductions accompany increases of rates, or if international through rates are increased on the external portion of the route only. Reductions of passenger rates must remain in effect at least three months, and of freight rates at least one year, but reductions may be granted for shorter periods if the period is stipulated in advance. These restrictions do not apply to excursion rates. Thus the public enjoys complete security against unfair discrimination (for there have never been any charges of secret rebating or criminal collusion between railway officials and favored shippers) without unduly restricting the power of the federal railways to adapt their charges to special conditions.

The government has retained the system of three classes of passenger service. The third class, however, and under certain circumstances even the second, may be omitted from express trains, and the first class, and under certain circumstances, even the second, may be omitted from accommodation trains. In fact, these omissions are freely made, and the Swiss three-class system works out in much the same way as the American system of Pullman and tourist cars, and day coaches. The schedule of passenger rates adopted for the federal lines was the lowest in effect at the period of repurchase on any of the private lines. The railway traffic and general economic

conditions are so different in Switzerland and in the United States that a comparison of passenger rates is fruitless, and the same statement is true of freight rates. The classification of freight is relatively simple. Provision is made for the special classification of raw materials used in agriculture, and of some other commodities. Special rates may be made out of consideration for foreign competition, in order to secure equally favorable treatment for domestic shippers on foreign railways, and to secure transit traffic from competing lines, provided that domestic shippers are not injured thereby. In times of public distress the Federal Council may make special rates on food-stuffs and live-stock. The various freight rate tariffs charged by the private companies were not withdrawn until the new standard rates could be properly adjusted, and it was not until July 1, 1904, that the new rates were put into effect. Thus the pledges of the Federal Council relating to rates, contained in the message of 1897, advocating public ownership, were carried out to the letter, and in view of all the circumstances the period that elapsed was not unduly prolonged.

The law of July 27, 1901, not only established a satisfactory system of rate making, but also provided for the redemption of the pledges for improved service. The number and speed of trains and the supply of rolling-stock has been increased, terminal facilities have been improved, and ways more solidly maintained. The reports of the chambers of commerce of Swiss cities and of other bodies authorized to speak in the name of the economic interests of the country are full enough of specific criticisms of the service and suggestions for its improvement, but there is no disposition to disparage the capacity of the railway

administration or to condemn its conduct of affairs. There has never been any dispute among the critics of the Swiss federal railways over the adequacy and efficiency of the service, nor is there any between the two writers mentioned at the beginning of this article. Mr. Vrooman states that "rates have been lowered, wages raised, hours of labor shortened, the service improved," and Mr. McPherson does not contradict this statement. The difference of opinion is as to who is paying the bills. One writer says the railways are more than paying their way; the other, that they are a drain on the tax-payers. The unsettled question in the matter of the Swiss federal railways is that of their financial standing.

The popular majority which sanctioned the program of public ownership in 1898 had not expected to make of the federal railways a fiscal monopoly. The earning of a large revenue for the government was not among the advantages of nationalization urged by the Federal Council in its message of 1897. The latter had declared, on the contrary, in favor of the application of net earnings to the amortization of the railway loans. The Swiss regarded the funded debt in the light of a mortgage upon their railway property, and determined to own their property clear of such charges before diverting net earnings to the federal treasury. The Federal Council's purpose in advocating the ultimate extinction of interest charges was to facilitate an eventual reduction of rates rather than to secure a fresh source of public revenue. The period of sixty years was selected as that in which the funded debt should be amortized. The annual payments necessary to effect such amortization were accordingly computed, and are made a fixed charge in each annual railway budget. The policy of the railway management

was understood from the beginning to be to earn no more profit than should be necessary to meet these amortization charges, remitting surplus earnings to the public in the form of better service or lower rates rather than in that of cash contributions to the federal treasury. There has not yet been any connection between the railway profit and loss account and the general federal revenues.

The item of net earnings in a federal railway statement is accordingly not comparable with a similar item or with anything in an American railway statement. It actually represents the surplus profits over and above the interest charges (averaging about $3\frac{1}{2}$ per cent) on the entire funded debt and the amortization charges on the same. The latter, which in substance are a kind of deferred profit, and would ordinarily be classified under the head of profits, amounted to 4.3 million francs in 1903, and were estimated at slightly over 8 millions in the budget for 1911. The sum of interest and amortization charges represents not much over 4 per cent upon the funded debt, and is much less than the interest and dividend charges upon any profitable American road. In other words, the cost of the capital devoted to the use of the shipping and travelling public by the Swiss government is materially less than the cost of the capital devoted to the use of the American public by American railways. Other things being equal, the cost of service on the Swiss railways must be less than if private enterprise were employed to render the same service. Hence it would appear not impossible that the Swiss government might reduce rates, raise wages, shorten the hours of labor, and improve the service, as it has done, and still make both ends meet. Under the peculiar Swiss conditions, then, the test of financial success is

the proximity of the profit and loss item in the accounts to zero.

There has been a wide-spread impression in recent years, both in Switzerland and elsewhere, that the federal railways have proved a financial failure.¹ This impression is founded largely upon the annual official budgets. Each year since the revised rates of wages and passenger and freight tariffs were put into effect, the railway management itself has estimated that the next year would close with a deficit. Thus in a sense it is true that the federal railways year after year have been having to face deficits. These deficits, however, have been more apparent than real. The actual financial results have regularly been more favorable than the budgetary estimates with the single exception of the year 1908, and the federal railways have regularly earned a surplus over and above the amounts required for the interest and amortization charges except in the two years 1908 and 1909. This is indicated by the following table, computed from the official reports, showing in parallel columns the estimated deficits and the actual results.

Year	Profit (+) or loss (-) as estimated in budget	Profit (+) or loss (-) actually resulting
1902	.....	+4,422,420
1903	.....	+1,030,682
1904	- 1,209,725	+ 60,735
1905	- 2,088,400	+ 651,734
1906	- 4,660,350	+2,548,523
1907	- 2,528,527	+ 429,812
1908	- 2,498,790	-5,823,166
1909	-10,927,330	-4,091,020
1910	- 9,125,000	+7,948,758

Some of these figures are not the same as the corresponding figures in the official budgets and reports.

¹ Cf. P. Favarger, *La Situation des chemins de fer fédéraux en Suisse*. *Journal des Économistes*, Décembre, 1910.

The official budgets do not include with the regular estimates for the year any estimate of the so-called "high-prices-increments" paid since 1906 to the railway employees. Beginning with 1907, I have included such an estimate, based on the sum actually so paid in the preceding year. The official reports often carry over surpluses or deficits into the accounts of the ensuing year, where they serve to conceal the true result of that year's operations. Thus the report for 1910 states the result of the year's operations to be a deficit of 1,535,616 francs, whereas in fact the result was to diminish the accumulated deficits of the two preceding years by the amount shown in the table, that is, the largest surplus in the history of the federal railways. Taking the results of the entire operations up to the end of the decade, the surpluses exceed the deficits. Since, however, a portion of the earlier surpluses were employed for extraordinary amortizations, the official balance sheet at the end of 1910 showed a net deficit of one and a half million francs on the eight years' operations, or a little more than one-tenth of one per cent of the present funded debt of the federal railways. The amortization charges for a single year, which are a species of profit, would wipe out this deficit several times over. Since all interest and amortization charges have regularly been paid, this nominal deficit may be disregarded. Indeed it should have been wiped out by the results of the first quarter's operations in 1911. So near an approach to the ideal zero of surplus profits must be considered a sufficient disproof of the charge of financial failure.

The important concern is whether this state of equilibrium between income and outgo is likely to be permanent. We must therefore inquire into the

causes of the series of unfavorable budgets prepared by the railway management and of the two deficits actually incurred.

The reduction of rates, improvement of service, and increase of wages, as pledged by the Federal Council in its message of 1897, had for their immediate effect, as had been anticipated, a more rapid increase of operating expenses than of traffic receipts. But the advocates of nationalization had contended that this increase would be met out of savings in other directions, especially in the lowering of the cost of capital and in the more economical management of the railways as a consolidated monopolistic system. Hence, unless the advocates of the policy of "business opportunism" were mistaken in their calculations, the causes of the unfavorable budgets must lie elsewhere.

The explanation seems to be simply that the Federal Council had calculated very closely, when it outlined the advantages of nationalization, and abnormal economic conditions could easily disturb the balance of income and outgo. In 1902-03, when the transfer of the four leading private lines was made, Europe generally was suffering from an acute commercial depression. The receipts had already shown a tendency to fall off before the transfers were made. The new governmental management found that the private systems had been allowed to run down during the preceding period of uncertainty more than had been anticipated. Maintenance and renewal requirements were accordingly abnormally heavy, and the immediate outlook for an increase of traffic, despite the promised reduction of rates, was not bright. Hence the unfavorable budgetary estimates for the years 1904-06. The commercial depression, however, proved to be

only temporary; traffic, both passenger and freight, increased with unexpected rapidity; and in 1906 an anticipated deficit of nearly five million francs was converted into a surplus of over two and one-half millions. The effect was to stimulate an accelerated increase of expenditures. This is reflected in the budgetary estimates of new construction and equipment to be charged to capital account, as well as in the account of operating expenses. The railway management understood the situation perfectly. Writing in 1906, they stated that "thanks to the development of the passenger and freight traffic, we may hope that in 1906 as in the preceding year operations will be concluded without a deficit, contrary to the anticipations of our budget. If the development of the traffic continues and our anticipations of increased receipts are accordingly realized, the same result will occur in 1907. But it ought not to be overlooked that the continual increase of expenditures cannot be further held in check, so that any business depression will inevitably upset the balance of our accounts."¹

The unwelcome business depression came at the end of the following year, the year of the American panic. The operating receipts of the Swiss federal railways were less in 1908 than in 1907, altho expenditures were materially greater. The situation was made more acute by the grant of the "high-prices-increments" to the employees. In fact, not only the cost of labor, but that of many other railway supplies had gone up approximately twenty-five per cent in the last ten years. The St. Gothard, the only important Swiss railway at that time still under private management, suffered as severely as did the federal railways. The federal railway management cut down

¹ Bericht und Antrag vom 28. September, 1906, p. 51.

expenses in every legitimate way, suppressing superfluous trains, and reducing its working force as much as possible without impairing the efficiency of the service. Yet the policy begun in 1906 of voluntarily adding a supplement to the wages of all employees, in order to enable them to maintain a reasonable standard of comfort in the face of an ever-increasing cost of living, was courageously maintained. Had these payments been discontinued, the federal railways might have passed through the crisis without any deficit, but such a backward step was not suggested. The management was told by its critics that it could not restore the equilibrium of its budget without a radical increase of rates, but no such increase was sanctioned. The management adhered to its policy of retrenchment, and relied upon the return of prosperity to revive the surplus.

The vigor of the policy of retrenchment is revealed in the budgetary estimates of capital expenditures for fresh construction during this period. These amounted to 39.7 millions of francs for 1906, to 42.6 millions for 1907, to 49.5 for 1908, 34.6 for 1909, 31.1 for 1910, and 30.7 for 1911. The operating ratio, which was 61.1 per cent in 1902 and 65.5 per cent in 1903, had risen to 72.8 per cent in 1908. It was reduced by 1910 to the same figure as in 1903. In the official report for 1910 (p. 56), the management was able to point to the complete success of its financial policy. The second decade of the Swiss federal railways begins auspiciously with an estimated surplus, the first budgetary surplus since the government's railway policies have been in effect.¹ The truth is that the Swiss federal railway management is to be highly commended for its energetic and sagacious

¹ Bericht und Antrag für 1911, p. 48. Ibid. für 1912, p. 50.

handling of a difficult situation. In any undertaking in which the margin of profit is calculated so closely as in the Swiss federal railways, abnormal conditions may temporarily produce abnormal profits or losses; but over longer periods of time these should offset one another. There is no reason why the equilibrium between income and outgo should not be permanent.

Our examination of the financial history of the Swiss federal railways leads us to certain definite conclusions. Mr. McPherson's statement that the railways have become a drain upon the tax-payers is not supported by the evidence. For Mr. Vrooman's prediction, on the other hand, that the existing railways will have paid for themselves out of profits in about sixty years, there is substantial foundation in the record of governmental management. Without venturing, however, to predict, we may observe that the Swiss federal railways have already reduced rates, improved the service, raised wages, and made a profit. In short, the evidence of the first decade of the Swiss federal railways is that the policy of "business opportunism" is justifying itself.

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TENANCY IN THE WESTERN STATES¹

SUMMARY

Characteristics of the Western States, 364. — Low percentage of tenancy and low price of land, 365. — Decline in tenancy since 1900, 367. Percentage of tenancy greatest for farms of medium price, used for grain farming, 369. — Very low percentage of tenancy on fruit farms, 370. — Changes in tenancy in the West since 1880, 372. — In the United States at large a slow but certain increase of tenancy, 373. — Yet there is no tenant class; tenancy is a step toward ownership, 374. The relation between tenants and owners needs to be improved, 375.

The Western division of states, or in terms of the census of 1910, the Mountain and Pacific divisions combined, comprise twelve states, occupying the Rocky Mountain region and extending westward to the Pacific Ocean. In area these states are large, being equal to two-fifths of the land surface of the United States. From the standpoint of agriculture, however, they do not fill so important a place. Within this vast extent of territory are found but one-seventeenth of the whole number of farms of the United States, one-eighth of the acres of farm land, and one-ninth of the total value of farm land and buildings. In comparison with the North Central States there are but one-fifth as many farms, three-tenths as many acres of farm land, and less than one-fifth as great a value of farm land and buildings.

As to their products, the western states make a good showing, whether in proportion to the number of

¹ The preceding articles are: "Tenancy in the North Central States," in this Journal for August, 1911: "Tenancy in the North Atlantic States," *ibid.*, November, 1911.

farms or to the acres of farm land. Of wheat these states, with 9.1 per cent of the total acreage, report 13 per cent of the total product. Of barley they report 23 per cent of the acreage and 27 per cent of the product. In the acreage of oats they report 5.5 per cent of the total, and in the proportion of bushels produced, 6.8 per cent. A showing no less good is made in respect to hay and forage, the division reporting one-eighth of the acreage, and one-sixth of the yield of this crop. A still better showing is made in fruit production, altho comparisons with other divisions are not altogether easy to make. Of the total number of cattle of the country these states contribute about 15 per cent, and of the sheep, 59 per cent.

It is thus apparent that the western states are characterized by a low average price of land, accompanying which one finds, so far as the main extent of acreage is concerned, the live stock and the grain-growing industries. There are, however, a great number of instances of agriculture as highly specialized as is to be found anywhere in the United States. This, for the most part, is devoted to fruit and vegetable farming. Where the general and the specialized farming is within the same county it is not a simple matter to trace the characteristics of each as regards tenure. However, in a considerable number of instances the types of farming are fairly separated, making the case an easier one.

Another prominent characteristic of the western country is its newness. Of the acreage of farm land added to the total within the United States during the past decade, nearly half was within this division of states. More homesteads have been taken during the past decade than for any other since the passage

of the Homestead Act. During the same time a few thousand Carey Act entries have been made, and in addition, large numbers of farms have been granted under the various other acts in vogue. Within the past seven years entries of public land in the western states have equalled in extent the entire state of New Mexico. Nearly all of the farms recently acquired from the government are counted as owned farms and so tend to reduce the proportion of rented farms within the states in which they are located.

Of the 373,000 farms in the Western division in 1910, 52,000, or 14.1 per cent were in the hands of tenants. This is a smaller percentage than for any of the geographic divisions of states except New England, and less than two-fifths that for the United States as a whole. Moreover, the price of land is lower in the western states than in any other division of northern states outside of New England. Taking the northern and western states by divisions, as now recognized by the Census Bureau, the relation of tenancy to value of land may be viewed in the large. It would hardly be instructive to include in this comparison the southern states, since the tenant question is there so essentially different from that of the North.

VALUE OF LAND AND PER CENT OF TENANCY

	Value per acre	Per cent of tenancy	Rank in value	Rank in tenancy
East North Central . . .	\$61.32	27.0	1	2
Pacific	43.76	17.2	2	4
West North Central . . .	43.20	30.9	3	1
Middle Atlantic	33.85	22.3	4	3
Mountain	19.72	10.7	5	5
New England	19.27	8.0	6	6

The relationship between values and rate of tenancy may seem at first glance to be a very uncertain one, and therefore worthy of little attention. But the absence of correlation in these particulars is due mainly to the high rate of tenancy in the West North Central division, and to the low rate in the Pacific division; aside from these two divisions the rankings on the two bases are similar indeed. It will be remembered that in the West North Central division the conditions are especially favorable for the development of the type of farming to which the American system of leasing is adapted, and this fact accounts for the relatively high percentage of tenancy in this division. The table given above shows the Pacific division to rank second in value per acre; altho this and the West North Central division (which ranks third in that respect) are less than a dollar an acre apart. It cannot be doubted that if we consider only the characteristic part of the West North Central division — that is exclusive of the great body of very cheap land in the extreme western and northern portions — then the North Central and Pacific divisions change place as to rank in value per acre; and this single shift brings the rank in value and the rank in tenancy very close together for all divisions. But value per acre is only one factor affecting the proportion of tenancy. As will be pointed out presently, other factors figure with unusual prominence in the western states, holding the percentage of tenant farms below what it would be were only the more general type of farms found. It remains true, however, so far as regards farming of the more usual sort, that the proportion of tenant farms rises with the rise in land values.

The percentage of tenancy in the western states in

1910 was less than that in 1900, when 16.6 per cent of the farms were in the hands of tenants. The decrease is apparently due to two main causes. In the first place the great number of new farms taken from the public domain has increased the number of owned farms and contributed but little to the number of tenant farms. On the other hand, the development of special lines of agriculture, particularly the growing of fruit, has resulted in an increase in the number of small farms in the hands of owners. Aside from these two main causes there are important changes in respect to some of the leading kinds of farming, such as wheat growing; accompanying these movements there has been a considerable change in the percentage of tenant farms. In the main the tenant farms are about the same in size as are the owned farms, altho among the owned farms is found a great majority of those upon which fruit is the chief crop. This would seem to point towards a smaller size; but the tendency is largely offset by the fact that amongst the owned farms are found also the greater proportion of live stock farms, which are on an average very large. It is then the farms intermediate between these largest and smallest ones, namely, the farms on which the most of the general farming is done, such as the growing of the cereals, which show the greater number of tenants.

The land highest in price is not that which for the most part constitutes the tenant farms; the situation being thus unlike that in the North Central states. On the contrary, inasmuch as the land highest in price is that used for fruit growing and this industry is mainly in the hands of owners, a large percentage of ownership instead of tenancy appears on this highest priced land.

In California, within the counties in which land is worth \$60 or more per acre, the percentage of tenancy is 20.1, while in the counties in which it is worth from \$30 to \$60 per acre, the percentage of tenancy is 22.5, and in those under \$30 per acre, 19.8 per cent. The situation, with reference to the high-priced land, is unlike that in any one of the states of the Middle West. Likewise, in the state of Washington, in the counties in which the average value of land is \$60 or more per acre, the percentage of tenancy is 12.9, in counties with values from \$30 to \$60 per acre, the percentage of tenancy is 15.9, while in counties with farm land valued at less than \$30 per acre it is 11.7 per cent. In Colorado the counties with land at \$35 and over per acre show 25.7 per cent of tenancy; those with land at \$20 to \$35 per acre, 30.8 per cent.

Using as the criterion the total value of the farm instead of value per acre, it appears that the tenants are in charge of the high-priced farms much more than is the case with those low in price. In Oregon the group of counties showing the lowest priced farms has 12.5 per cent of all farms in the hands of tenants; the group of medium price, 16.2 per cent; and the group of highest price, 17.6 per cent. In Washington the percentages on the same basis are 6.2 per cent for the cheapest farms, 12.7 for the medium, and 19.9 for those highest in price. In Colorado the low-priced group shows 9.8 per cent of tenant farms, the medium, 18.7 per cent, the highest priced group, 28.7 per cent. This relationship between price of farms and tenancy is due in the main to one general fact. Here as elsewhere the tenants are doing the extensive rather than the intensive farming; they are the grain farmers. Conditions are such that the average value of the

grain farm is above that of the stock farm, since the latter, altho large, is usually very low in price per acre. Again, the grain farm as a unit is of higher value than the fruit farm, since the latter, tho high in value per acre, is of small size.

The proportion of farms in the hands of tenants has increased simultaneously with the growth of the small-grain industry, and has decreased where small-grain farming has declined. For the Western division as a whole the tenants have been raising about 50 per cent more than their proportional share of the oats and wheat, and more than double their share of the barley. Wheat growing was carried on in California on a considerable scale for many years until within the past decade, and was located mainly in the great central valleys of the state. With hardly an exception the counties in which there were great acreages of wheat show a higher percentage of tenancy than the average for the state. Since 1900 the wheat-growing industry has declined greatly throughout these valleys, and during the same time the percentage of tenancy has fallen from a proportion above that for the whole state to one quite below it. The same situation is found in Oregon, where with the decline of the wheat industry in the western part of the state the proportion of tenant farms has decreased to a marked degree. On the other hand, the acreage of wheat has increased rapidly in the northeastern part of the state and at the same time the proportion of tenant farms has gained rapidly. So in the state of Washington: while the percentage of tenant farms decreased during the past decade for the state as a whole, there was a sharp increase in the southwestern part of the state, where also the acreage of wheat increased very greatly, — in fact, more than doubled.

Within the 12 counties leading in wheat, which produce 95 per cent of the wheat grown in the state, 24.2 per cent of the acreage of this grain is reported by tenants.

In contrast to the high percentage of grain-producing farms in the hands of tenants is the very low percentage of fruit farms so operated. The situation found in the eastern states is repeated in the West with emphasis, the more pronounced condition being due to the more highly specialized character of the western fruit farming. The more valuable the fruit farm, either per acre or as a whole, the less likely is it parted with under lease. The oranges, lemons, grapes, and apples are produced mainly by men who own the land on which they are grown. Of the great orange crop of California less than 2 per cent is grown by tenants, and of the lemon crop but little over 4 per cent. Vineyards are not so high in price per acre as are orange and lemon groves, neither does it take so long to bring them to bearing age; hence a somewhat larger percentage is in the hands of tenants. Yet in the 14 leading grape-growing counties of California the proportion of grapes produced by tenants is but 9.2 per cent, while in the same counties the proportion of tenant farms is 21 per cent or over twice as great. Apples are not grown so exclusively by special farmers; they are reported in considerable quantities from farms on which grain is the leading source of income. Hence the grain farms in the hands of tenants frequently produce important amounts of apples. In the seven leading apple-growing counties of Washington one-sixth of the farms are operated by tenants, but they report only 13 per cent of the apples grown. This, however, does not give an accurate picture of the situation, since several of these

counties are among the greatest in the production of wheat, a fact which accounts for the relatively high percentage of tenancy. Within these counties apple growing is a subordinate industry. It is in such counties as Chelan (Washington) or Hood River (Oregon) that the characteristics of the apple farm can be found well isolated. In both of these counties the proportion of tenancy is low; in Chelan county, 6.6 per cent, in Hood River, 5.5 per cent. In Chelan county the tenants report only 4.5 per cent of the apple trees of the country; and in Hood River only 5.6 per cent. For each of these counties the tenants report a higher percentage of the total quantity of apples than of the total number of trees, showing that in a few instances bearing orchards are rented.

Unlike fruit growing, the raising of vegetables is very frequently done by tenants. In 1900 the tenants of the western states operated more than double their proportional number of vegetable farms, and altho the same classification is not made for the census of 1910, the situation is apparently unchanged. The most important vegetable-growing districts of the West are in the vicinity of Los Angeles and Seattle. In Los Angeles county 52 per cent of the vegetable acreage is reported by tenants, and about the same in King county, Washington, in which Seattle is located. These vegetable farms are of small size, consisting usually of a few acres of land rented for cash to Japanese or Chinese gardeners.

As in other parts of the United States, the tenant of the Western division owns comparatively little live stock. In 1900 he had not much over half his proportional share; in 1910 the situation was not greatly changed. In a few states, however, the tenants have their full quota of dairy cows, while they un-

doubtedly have in all cases their full share of draft animals, altho it is difficult in the statistics available to distinguish them from range animals.

PER CENT OF TENANCY 1880-1910

	1910	1900	1890	1880
Western States	14.1	16.6	12.1	14.
Montana	8.9	9.2	4.8	5.3
Idaho	10.3	8.7	4.6	4.7
Wyoming	8.2	7.6	4.2	2.8
Colorado	18.2	22.6	11.2	13.
New Mexico	5.5	9.4	4.5	8.1
Arizona	9.3	8.4	7.9	13.2
Utah	7.9	8.8	5.2	4.6
Nevada	12.4	11.4	7.5	9.7
Washington	13.7	14.4	8.5	7.2
Oregon	15.1	17.8	12.5	14.1
California	20.6	23.1	17.8	19.8

Since 1880 tenancy in the western states has fluctuated considerably, as the table shows. Beginning in that year with 14 per cent it fell to 12.1 per cent in 1890, rose to 16.6 per cent in 1900, and decreased again in 1910 to a figure just barely above that of thirty years before. Notwithstanding the decrease in tenancy in the North Atlantic states during the past decade, there has been in general an appreciable advance in the proportion of tenant farms for the thirty-year period between 1880 and 1910. But the western states show no such tendency. Of the eleven states in the Western group but a single one, Wyoming, shows for the whole period an uninterrupted increase in the proportion of tenancy, and as it happens, it has had throughout nearly the lowest proportion of any of these states. With hardly an

exception, the states in which the most extensive systems of farming have predominated, and these are the older states in point of agricultural development, are the ones in which the percentage of tenant farms is highest.

For the United States other than the South, 25.6 per cent of the farms in 1910 were operated by tenants, as compared to 25.5 per cent so operated in 1900. The difference seems to be virtually *nil*. To say, however, that the advance in the proportion of tenancy has come to a standstill would be unwarranted. As shown in the preceding articles in this series the tendency is still apparently toward more tenancy in the greater portion of the upper Mississippi valley, by far the most important agricultural area of the North. This tendency toward slow but certain increase is offset for the present, partly by the decreases in the East where cheaper land and specialized farming promote ownership, and partly by the peculiar conditions of the Western division of states, where both specialized agriculture and the public domain are factors in keeping the proportion of ownership high and that of tenancy low. No type of farm is immune from tenancy infection, tho a few types are nearly so, while on the other hand, certain types are especially susceptible. The change, so far as the great body of farms in the North is concerned, is imminent, notwithstanding the apparent respite in the advance. Yet it remains true that the increase in the proportion of rented farms for the United States as a whole, from 35.3 per cent in 1900 to 37 per cent in 1910, is due chiefly to the relative increase of farms of this class in the South, where the problem is an essentially different one.

Altho there are many tenants in the United States

there is, outside of the colored tenants of the South, no tenant class. The tenants are young men who turn to this way of getting a start in the business of farming. In almost all cases the beginning is made in the hope of becoming a farm owner within a comparatively few years. That hope, tho frequently long deferred, is eventually realized in the greater number of cases. For example, the census of 1900 shows that between the ages of 25 to 34 more farmers were tenants than farm owners. But the change in form of ownership begins at once after the age of 34, and for the higher age groups owners are more numerous than tenants. At the age of 65 years or over owners are more than five and a half times as numerous. There has been much dispute as to whether or not tenancy is a step toward ownership, but the case does not seem open to argument. Tenancy is a means of getting a foothold and makes possible the ultimate ownership of land. The only question — an open one — is whether it is the best means of accomplishing the result.

Tho we have many tenants, we do not have, outside of a few instances, a tenant system. The relation of tenant to landlord is an uncertain one, and very frequently one unsatisfactory to both parties. Such it must remain until the landlord is willing to content himself with a reasonable rate of income on the investment rather than to hope for something more than ordinary income, something in the nature of speculative gain to be realized only by selling the land. On the other hand, the tenant must be given some assurance that he may stay, if he wishes, more than a year or two on the same farm. Men fail to become land owners, or postpone for years the time when they become owners, because farming as they

pursue it does not pay well enough to enable them to buy land. The reason it fails to pay better is doubtless because the tenant as a rule is not a good farmer; but the fault is not altogether his. The owner of the land leases it under such terms that the tenant is not encouraged in the use of scientific methods. The tenant is far from being a conservationist. He is interested in immediate results, and immediate results are obtained by exploitation. Moreover, the tenant does not even produce the best crops; he lags behind the farmer who tills his own soil. From two standpoints, then, society has cause for complaint; for society has a right to expect good results in the yield of crops and such care of the soil that it will continue at its maximum productivity. Furthermore, society is concerned with the relation of every individual to the community; but the tenant is little disposed to assume community responsibilities.

To complain of the growth of tenancy is useless. The serious question is that of a remedy. A remedy, if there be one, must be in the nature of a plan by which a young farmer can buy land. With the land high in price, the purchase must be mainly on credit. True, the products of the farms are also high in price, but our bunglesome system of distribution returns to the farmer but half or two-thirds of the price the consumer shortly pays. Could the farmer overcome this expensive way of getting his wares to the market, he could more easily own the land on which they grow. Another great problem is that of agricultural credit. It has been well solved in several European countries; but in America the farmer pays a high rate of interest on what he borrows, and is frequently short of ready capital for carrying on advantageously the operations of the year. A good system of marketing

and a good system of credit would retard the movement toward tenancy. But even so, an equitable system of leasing land is needed, one which in itself will make tenancy more tolerable and possibly less frequent. The arrangement under which one man owns the land and another tills it is not necessarily bad ; it may conceivably be of advantage. Yet it must be recognized that land ownership on the part of the farmer is one of the best assets he can have both as a producer and as a citizen.

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NOTES AND MEMORANDA

MINORITY SHAREHOLDERS IN RAILROAD COMBINATIONS

A complicated phase of inter-railway relations in connection with consolidation arises out of conflict of interest between majority and minority stockholders. This conflict is peculiarly likely to occur whenever a bare majority of the stock of one railroad is held by another railway company. Abuse of corporate control may be exercised in two distinct ways; the majority may manage the smaller company permanently in the interest of the dominant owner, regardless of the rights of the minority to a fair return upon their investment; or else it may so operate it for a time as to force the minority to sell out their holdings at a sacrifice. The best illustration of the latter policy is afforded by the leading case of the New York and Northern Railroad, as adjudicated in 1896 by the state Court of Appeals.¹ The New York Central, being desirous of acquiring this little company which operated a short line from the Harlem river north, first acquired a substantial block of its second mortgage bonds, together with a majority of its capital stock. It then proceeded, as alleged by the minority stockholders, to cancel valuable traffic contracts as well as so to operate it as to cause default in the interest on the bonds. The New York Central thereupon, as holder of these bonds, sought to foreclose upon the mortgage, buy it in at auction, and thus "freeze out" the minority stockholders. Simon Sterne, representing their interests, however, after protracted litigation succeeded in preventing this outcome. A somewhat similar policy, except as to the details of pro-

¹ 150 N.Y., 410.

cedure, seems to have been adopted in 1902 by the Rock Island directorate in order to force the minority stockholders of the Choctaw, Oklahoma and Gulf to accede to their program of combination. Manipulation of the same sort is charged in the protest of the minority shareholders of the Rutland Railroad in 1912 against their treatment by the New Central management, in connection with proceedings before the Public Service Commission relative to transfer of the Rutland company to the New Haven system.

The other policy, that of protracted operation of a subsidiary line for the benefit of another railroad owning a majority of its shares, rather than for the immediate interest of all its own shareholders alike, is illustrated by the experience of the Kanawha and Michigan. The facts have been brought to light in the course of litigation in the Federal courts extending over the greater part of a decade.¹ It forms a part of the checkered history of the ill-starred Hocking Valley Railroad. The smaller company, the Kanawha and Michigan, held a strategic position in the Ohio and West Virginia coal fields. It was ever likely to develop into a "disturbing factor" in the general policy of rate harmony initiated by the Trunk Lines after 1900. It was at the time free of indebtedness and in a fair way to prosperity; the stock sold nearly at par. A bare majority of this stock was acquired by the Hocking Valley; which, it is alleged, has since that time continuously subordinated the interests of the Kanawha and Michigan company to its own advantage. Opportunities for independent development have been refused, as well as all new sources of business and other railway connections. The new Virginian Railway, for example, constructed by the late H. H. Rogers, might easily have afforded it an excellent outlet to the south and east. This policy of repression was pursued for years with the result that no dividends were ever paid upon the capital stock. The state of Ohio brought pressure

¹ Reviewed in an address by Samuel Untermeyer before the New York County Lawyers' Association, January 5, 1911.

to secure its release; but these efforts were thwarted in various ways by transferring its shares from one hand to another. The final outcome was a surrender of the minority shareholders through a sacrifice sale of their holdings.

During these same years the minority shareholders of the Hocking Valley itself have been protesting in the Federal courts against the compact of 1902, whereby 51 per cent of its stock was apportioned among five neighboring roads in Trunk Line territory. The object was evidently in this case simply to prevent this road, a minor cross line, from disturbing the harmony of the rate situation. The minority stockholders, however, allege that a limitation of the joint holdings of these companies to bare majority control has deprived them of a market for their property. How the acquisition of the road by the Chesapeake and Ohio in 1911 may affect the interest of all parties concerned remains to be seen.

Many other illustrations of abuse, real or alleged, of bare majority control to the detriment of minority shareholders might be mentioned.¹ In most cases the fairness of the management is a matter of business judgment; depending generally upon the policy adopted as to charging betterments to capital or income account. And the courts are very properly chary of hampering boards of directors in the exercise of this discretion. But there can be little doubt that such arrangements are always fraught with real danger to the powerless minority interest. On the other hand, it should be recognized that the power of a small minority to obstruct proceedings, in order perhaps to compel a purchase of their holdings at exorbitant prices, must be subject to proper control by judicial authority. Blackmailing suits and obstructive legal proceedings, either for purely speculative purposes² or in the interest of extortion, have been too frequent in our industrial history. Nevertheless,

¹ St. Joseph and Grand Island; Central of Georgia; Chicago and Eastern Illinois; cited in detail by the author in *The Railway-Age Gazette*, January 5, 1912, p. 19 et seq.

² The Keene Southern Pacific Pool; *Quarterly Journal of Economics*, vol. xxv, 1911, p. 206.

the striking tendency toward railway consolidation since 1900, and the demonstrated ease with which a concentrated body of stock, even far short of an actual majority, may carry matters with a high hand, regardless of minority rights, have proved the need of remedial legislation. The extraordinary position of the small percentage of still independent ("non-assenting") stockholders of the Lake Shore road, standing in the pathway of its actual merger with the New York Central at this time, affords an instance of the conflicting interests involved. The New York Central has for years managed the Lake Shore primarily in its own interest, even to the extent of using it as its fiscal agent in controlling the Reading and other subordinate roads in Trunk Line territory. Nice questions of conflicting rights between majority and minority interests have naturally arisen all along the line.

Assuredly no undue obstacle should be placed by law in the way of a straightforward movement toward combination of connecting, non-competing railroad companies. All such movements make for better service, simpler financing and more economical management. But there is a wide difference between buying the property, — *e. g.*, the entire capital stock of a company — and merely acquiring 51 per cent of its shares. It is this latter practise which should be regulated. The propositions and debates in Congress dealt with the matter at length, following out the plans in the President's message of 1910; but unfortunately the Mann-Elkins act did not cover the point at all. The matter has, however, been revived by the wise recommendations of the Railroad Securities Commission authorized under that law. These recommendations may best be stated by the following excerpt from its report.

Any company, or group of companies, which has purchased a majority of the stock of any existing road may properly be required to buy the minority stock at the same price as that paid for the majority stock where the price has been uniform. If the price has not been uniform, the purchase should be either at the average price paid for such holdings or at a price to be fixed by appraisal, at the option of the minority stockholders.

If a company has acquired control of the common stock of another, but not of its preferred, it should be required either to buy the preferred stock or to make the preference cumulative. For the continued existence of a non-cumulative preference under such conditions will offer constant temptations to unfair dealing, if not to actual fraud.

In order to avoid vexatious opposition to consolidation by a minority it should be possible, after such an offer had been fairly made, to convey the property by three-fourths vote of the shareholders and dissolve the corporation. The purchase of less than a majority of the stock of one line by another (except as one of a group of railroads jointly holding the stock of some connecting company) should be discountenanced and as far as possible prohibited.

It is to be hoped that Congress will deal with this important matter in connection with whatever supplementary legislation is needed to round out our present Interstate Commerce Laws. Mere cumulative voting for directors on the principle of certain proposed reforms in the laws respecting the suffrage, in order to curb the tyranny of political majorities, might do something. But it would need to be a part of a general plan for Federal incorporation of railroads. That is a proposal of larger scope, which, it should be added, is also favorably treated by the Railroad Securities Commission in another part of its Report.

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STATE BOUNTIES AND THE BEET-SUGAR INDUSTRY

State bounties as a method of stimulating the development of the beet-sugar industry in the United States were most in vogue from 1895-98. There were some cases of state bounty granting before this and a few have occurred since, but the main activity took place during the three years

following the expiration of the bounty period of the McKinley Law (July 1, 1895).

As a rule the state bounties granted during this period took the form of a rate per pound (usually one cent) paid on the sugar product, and commonly providing as a condition of payment that the beet growers be paid at least a stipulated price per ton for the beets (usually \$5). On the most common basis, — one cent for sugar bounty, with \$5 per ton to be paid for beets, — the extra beet price nearly offset the bounty on sugar, so that the beet growers in fact secured most of the money paid out under the bounty law.

Nebraska was one of the pioneers in the payment of beet-sugar bounties. That state had two experiences with the practice, one before and the other during the time of greatest activity in state bounty payments. In the year 1889, when the Oxnards established a beet-sugar factory at Grand Island, Nebraska, that enterprise was fostered in a number of ways, including an outright gift of the land on which the factory stood, a cash bonus, and a state bounty of one cent per pound on sugar produced. This bounty yielded \$7,364 for the campaign of 1890; in the following year the bounty was withdrawn. The same group of capital undertook to establish a second factory at Norfolk, Nebraska, in 1892. But the farmers of the district, in view of the election results, which pointed to the repeal of the McKinley bounty, were not very enthusiastic about the enterprise; and this, combined with the dry year of 1894, almost killed the industry in that state.

In March, 1895, the state came to the rescue of the languishing industry, and the legislature passed a new bounty law, offering $\frac{1}{2}$ of a cent a pound on all sugar manufactured, provided the beets brought the farmers at least \$5 a ton. Since the amount of bounty on the finished sugar just about covered the extra cost of the beets, it amounted virtually to a bonus of \$1 a ton for the beet growers. Under the stimulus of this law some 9000 acres were put under beets for the two Nebraska factories for the crop of 1895. The

legislature of 1896 did not favor the principle, and repealed the bounty law. The Grand Island and the Norfolk factories nevertheless paid the farmers the extra price for beets, and filed with the state a claim for the bounties, due under the old law. This claim, which amounted to \$40,000, was in the courts for a number of years, and it was not until 1904 that the law finally was declared unconstitutional. The two subsidized factories, and two others established later, have one by one gone out of business. No beet-sugar factories are now in operation in Nebraska.

The state of Michigan had an experience with bounties which in many respects was even more striking than that of Nebraska; tho the industry established under the impulse given by the bounty law has survived in Michigan much better than it did in Nebraska, a result due, no doubt, to natural conditions more favorable to the industry in Michigan than in the latter state. The legislature of 1897, in Michigan, passed a law providing for a bounty of one cent per pound to be paid for sugar made from beets for which at least \$4 per ton had been paid to the farmers. An appropriation of \$10,000 was made to cover the payment of the bounty, and it was provided by the law that any excess over this amount should come from the general fund not otherwise appropriated. It was further provided that any factory with a capacity of at least 2000 pounds of sugar per day, erected while this act was in force, should be entitled to receive the bounty for a period of at least seven years from the date of the enactment of the law, March 26, 1897. The Michigan Sugar Company, with a factory at Bay City, in the campaign of 1898, made over 7,500,000 pounds of sugar and, therefore, claimed \$75,000 in bounties from the state. By 1899 there were eight companies in operation, and their combined bounty claims for that year amounted to \$301,106.13.

The legislature of 1899, frightened by the large amount of the claim made under this bounty law, amended the act, reducing the bounty to $\frac{1}{2}$ cent per pound; but the legislature refused to fix the limit of the bounty at \$25,000 as

recommended by the governor, and accordingly the governor vetoed the new law, leaving the old law still in effect. The matter was then brought before the Supreme Court of Michigan in connection with a suit for bounties unpaid, and the court declared the law unconstitutional, since it was "not a proper expense of the state on which a tax could be predicated." A large part of the industry thus artificially stimulated remained in Michigan even after the bounty law was declared unconstitutional, and Michigan today ranks as the third largest beet-sugar producing state in the Union.

The legislature of the state of New York, on May 18, 1897, passed a bounty law, appropriating \$25,000 to be given to beet-sugar manufacturers, provided none received more than one cent per pound, and provided also that the factories should pay to the farmers not less than \$5 per ton for the beets used in manufacturing the sugar on which the bounty was paid. In 1898, \$50,000 was appropriated to cover the expense of this bounty. Tho the maximum limit of the bounty was subsequently reduced to $\frac{1}{2}$ cent per pound, the policy of paying a direct bounty for sugar production in the state of New York was not entirely abandoned until the year 1907. Of three factories operating in New York under the law at various times, one still survives.

Utah is one of the few states which has paid a sugar bounty without any apparent subsequent regrets or change of heart. In the year 1896, the state voted a one cent per pound bounty to the new factory at Lehi, and it seems to be pretty generally agreed that this aid, granted for the first two years, was an important factor in the firm establishment of that plant as a successful manufacturing enterprise and a profitable outlet for a new crop.

One of the late comers into the bounty field was Kansas, and, of course, its methods were original and direct. The state of Kansas, in 1904, paid its first bounties under a law which differs from nearly all other state bounties in that the bounty of \$1 a ton on beets grown was paid directly to

the farmers instead of being paid indirectly by the sugar factory. A limit of \$5000 was set for this bounty, and it was provided that if the claims for bounty totalled more than this amount, the \$5000 should be divided pro rata among all growers on the basis of their tonnage. In 1904, 6,378 tons were produced, so that the farmers each received almost the full bounty of \$1 per ton. In 1905, there were 8,605 tons grown by 132 farmers; and in 1906, 69,000 tons were grown by 245 farmers. Of this total, 11,000 tons were grown by the United States Sugar and Land Company, and were chiefly manufactured at the company's plant at Garden City, altho small quantities were shipped to other factories, also under control of the company, at Holly and Leavitt, Colorado.

The state of Idaho passed a bounty law which was brought into the courts before any money was paid under it, and was finally declared unconstitutional only a short time before the bounty period provided by the law expired automatically in 1904.

The state of Washington, in 1898, passed a law providing for a bounty of one cent per pound on raw sugar, with a limit of \$50,000. This was to be paid only to factories built before November 1, 1899 (afterwards extended to 1901). It was to be in effect only three years. Only one factory made claims for bounties under this law.

The state of Minnesota, in 1898, passed a bounty law, and paid bounties in 1898 and 1899 to a single factory. The payment was refused in 1900, and the law, under contest, was declared unconstitutional.

Iowa and Wisconsin varied the form of bounty somewhat, by not giving a direct money payment, but providing merely for exemption of the beet-sugar factories from taxation; the Wisconsin law running for five years from 1897.

The states of South Dakota, Indiana, Pennsylvania, and Illinois form a group of states in which a bounty law was passed for beet-sugar production, but in which no money was paid. In these states no one came forward who had claims under the provisions of the statutes. The

state of New Jersey had a peculiar experience in that a bounty law was passed by the legislature in 1898, but was vetoed by the governor, on the ground that experiments did not indicate sufficient reason to believe that the establishment of the industry was feasible in the state.

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THE
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THE REGULATION OF RAILWAY RATES
UNDER THE FOURTEENTH AMENDMENT¹

SUMMARY

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I

In 1873 the Supreme Court of the United States, in the first decision² that involved the construction of

¹ This paper gives the substance of lectures delivered at Harvard University on the 14th Amendment.

² *Slaughter House Cases*, 16 Wallace, 36.

It may not be amiss to quote the language of that part of the first section of the 14th Amendment which is here under consideration:

"No state shall make or enforce any law which shall abridge the privileges or

the Fourteenth Amendment, limited its application in a way that must have surprised both those who had advocated and those who had opposed its adoption on the floor of Congress. The court held that the privileges and immunities of citizens of the United States protected by the amendment were not the general privileges and immunities of citizens, but only those special privileges and immunities that belonged to citizens of the United States as such, — the right to come to the seat of government, to assert claims against the national government, to transact business with it, to seek its protection, to share its offices, to have free access to its seaports, subtreasuries, land offices, and the courts of justice of the several states, to demand its care and protection over life, liberty, and property when on the high seas or in the jurisdiction of a foreign government, to assemble and petition for redress of grievances, and to have the writ of habeas corpus; to use the navigable waters of the United States, and to enjoy all rights secured by treaty with foreign nations, to change citizenship from one state to another with the same rights as other citizens of that state. Important as these rights are, they are not the ordinary everyday rights that closely affect the citizen. For these he was left to the protection of the states. Tho the actual decision related only to one clause of the amendment, the opinion of Mr. Justice Miller, who spoke for the court, intimated strongly that the clause forbidding the states to deprive any person of life, liberty, and property without due process of law, and to deny to any person within its jurisdiction the equal protection of the laws, was

immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws."

The reader need hardly be reminded that this Amendment was made after the Civil War, being ratified in 1868.

intended to protect against unjust discrimination the negro race only.

Three years later, however, in the *Granger Cases*,¹ (1876) it was taken for granted that the scope of the latter clause of the amendment was broader, and that it protected not merely those of the negro race, but all persons. The court in fact followed the dissenting opinions of Justices Field and Bradley, not the dictum of the prevailing opinion of Justice Miller.

The *Granger Cases* settled the authority of the state legislatures to control the charges of a business affected with a public interest. Some of the language used by the court went far in denying any right of the court to interfere. It was said distinctly that tho the power conceded to the legislature was liable to be abused, the people must resort for protection against abuses to the polls and not to the courts. It was conceded that under some circumstances, but not under all, statutory regulations might deprive the owner of his property without due process of law; but it was held that the amendment did not change the law; "it simply prevents the States from doing that which will operate as such a deprivation."

The question of rates seemed by these decisions determined to be a legislative, not a judicial question. Six years later² the court held that a railroad company whose board of directors was by the charter authorized to establish rates could not as against a general law of the state exact more than three cents per mile per passenger. The reasoning was put on a narrow basis, involving only the construction of the charter. The

¹ *Munn v. Illinois*, 94 U. S. 113. [1877.] *Chicago, B. & Q. R. R. Co. v. Iowa*, 94 U. S. 155. *Peik v. Chicago and N. W. Railway Co.*, *Lawrence v. Same*, 94 U. S. 164. *Chicago, M. & St. C. R. R. Co. v. Ackley*, 94 U. S. 179. *Winona & St. Peter R. R. Co. v. Blake*, 94 U. S. 180. *Stone v. Wisconsin*, 94 U. S. 181.

² *Ruggles v. Illinois*, 108 U. S. 526. [1883.]

power granted was to determine the rates by by-laws; the power to pass by-laws was limited to such as were not repugnant to the laws of the state, and hence it was held that the by-laws could not fix a greater rate than was permitted by the general legislation; "grants of immunity from legitimate control," said the Chief Justice, "are never to be presumed."

The states soon began to avail themselves of the power to control business affected with a public interest. The first important case concerning the limitation of their powers arose in California.¹ It decided that the rates of a water company might be fixed by a county board in which the water company was not represented, altho the charter of the company provided for its representation. The court expressly reserved the question what might be done in case the municipal authorities did not exercise an honest judgment or fixed a price manifestly unreasonable. Two years later,² it was decided that railroad charges might be fixed by a Railroad Commission, altho charters provided that the companies themselves might fix the tolls and charges. The legislature of Mississippi, by legislation subsequent to the charters, created a Railroad Commission with power to revise rates and increase or reduce them as experience and business operation might show to be just. It was argued that the legislature by the provision in the charters had surrendered the power of control over fares and freights. It was conceded that the rates must by the rule of the common law be reasonable, and the court held that the state was left free to act on the subject of reasonableness within the limits of its general authority as circumstances might require. "The right to fix

¹ *Spring Valley Water Works v. Schottler*, 110 U. S. 347. [1884.]

² *Railroad Commission Cases*, 116 U. S. 307. [1886.]

reasonable charges has been granted," said Chief Justice Waite, "but the power of declaring what shall be deemed reasonable has not been surrendered. If there had been an intention of surrendering this power, it would have been easy to say so; not having said so, the conclusive presumption is there was no such intention." The court, however, was careful to guard against an inference that the power of regulation was without limit. "The power to regulate," it was said, "is not a power to destroy, and limitation is not the equivalent of confiscation. Under pretense of regulating fares and freights, the State cannot require a railroad corporation to carry persons or property without reward; neither can it do that which in law amounts to a taking of private property for public use without just compensation, or without due process of law."

The statute was held not to be in conflict with the due process clause and the equal protection clause of the Fourteenth Amendment. "General statutes fixing maximum rates," it was said, "do not necessarily deprive the railroad company of its property contrary to the amendment." The importance of the qualifying word "necessarily" appeared in subsequent decisions when it was held that such statutes might sometimes be void. The decisions thus far were in favor of public control, and against review by the courts.

II

Four years later, in the Minnesota Rate Cases,¹ the court took a position hard to reconcile with what was said in *Munn v. Illinois* and the succeeding cases.

¹ Chicago, M. & St. P. Railway Co. v. Minnesota, 134 U. S. 418. [1890.]
Minneapolis Eastern Railway Co. v. Minnesota, 134 U. S. 467. [1890.]

The Minnesota Commission had ordered a reduction of rates for transportation of milk from three cents to two and a half cents a gallon; and for switching cars from \$1.25 and \$1.50 per car to \$1.00 per car. The railroads resisted and, upon application to the state courts, a mandamus was issued to put in force the rates fixed by the commission. The Supreme Court reversed this action. Justice Blatchford rested the reversal upon the fact that the decision of the railroad commission was made a finality under Minnesota law; he said that the commission could not be regarded as clothed with judicial functions or possessing the machinery of a court of justice. "The question of the reasonableness of a rate of charge for transportation by a railroad company, involving as it does the element of reasonableness both as regards the company and as regards the public, is eminently a question for judicial investigation, requiring due process of law for its determination. If the company is deprived of the power of charging reasonable rates for the use of its property, and such deprivation takes place in the absence of an investigation by judicial machinery, it is deprived of the lawful use of its property and thus in substance and effect, of the property itself, without due process of law and in violation of the Constitution of the United States; and in so far as it is thus deprived, while other persons are permitted to receive reasonable profits upon their invested capital, the company is deprived of the equal protection of the laws."

The court seemed by this language to decide that the question of rates was always a judicial question, and not, as had been held before and has been held since, a legislative question; that it could therefore be settled by a judicial tribunal only; that if a railroad company was not allowed to charge reasonable rates,

its constitutional rights were violated; and that it was entitled to reasonable profits in the same sense as other persons not engaged in a public calling. It is difficult to see how the right to profit as individuals not engaged in a public calling can be consistent with the right of the state to regulate the rates of those engaged in such a calling. The opinion, carried to its logical conclusion, would substitute the courts for the commission as final arbiter; and in effect would throw the whole burden of rate making upon the judicial machinery. No wonder the opinion did not command the unanimous voice of the court. Justice Miller concurred in the result, but upon the ground that the commission had applied to the courts to enforce their order; that in substance this was asking the courts to determine that the order was reasonable, and hence the court had the right and duty to inquire into the reasonableness of the tariff of rates.

Justice Bradley, speaking for himself and Justices Gray and Lamar, dissented. He pointed out that the decision practically overruled *Munn v. Illinois* and the railroad cases decided with it; that the question of the reasonableness of a charge, so far from being a judicial question, was preëminently a legislative one involving considerations of policy as well as of remuneration; that in practice it had usually been determined by the legislature by fixing a maximum in the charter of the company or afterwards if there were no binding contract; that the question only became judicial when the legislature enacted simply that rates should be reasonable, thus necessarily submitting the question what was in fact reasonable to the judicial tribunals; but that the legislature might itself or by its commission fix the rates; and that for that purpose their decision was final, unless they so acted as to

deprive parties of their property without due process of law; but that a mere difference of judgment as to amount between the commission and the companies without any indication of intent on the part of the commission to do injustice, did not amount to a deprivation of property. The real difference between Justice Blatchford and Justice Bradley was as to the question presented in a rate case. According to the former it was: "is the rate a reasonable one, and such as would afford the same profit as could be realized by one not subject to regulation?" According to the latter it was: "is the rate so unreasonable as to be arbitrary and amount to confiscation of property rather than mere regulation of a rate?" The difference is striking and fundamental. If the legislature had the right to regulate rates, as had been settled in the Granger cases, then the property of the railroads was qualified by that public right, and there could be no deprivation of such qualified property as long as the legislature confined itself to fair regulation and did not undertake to confiscate under the guise of regulation. The view of the minority has finally prevailed.¹

Justice Bradley in the course of his opinion took occasion to speak of the relations between the courts and the legislature. His words are worth quoting: "It is always a delicate thing for the courts to make an issue with the legislative department of the government, and they should never do so if it is possible to avoid it. By the decision now made we declare, in effect, that the judiciary, and not the legislature is the final arbiter in the regulation of fares and freights of railroads and the charges of other public accommodations. It is an assumption of authority on the part of the judiciary, which, it seems to me, with all

¹ *Atlantic Coast Line v. No. Car. Corp. Comm.*, 206 U. S. 1. [1907.]

due deference to the judgment of my brethren, it has no right to make."

The decision of the court in the Minnesota Rate Cases, it was further pointed out, gave a new extension to the meaning of the words "due process of law." Justice Blatchford's language must mean that due process of law requires judicial procedure "with the forms and machinery," to quote his language, "provided by the wisdom of successive ages for the investigation judicially of the truth of a matter in controversy." Long before this decision the court had held in an elaborate opinion by Mr. Justice Curtis¹ that the same words in the Fifth Amendment did not necessarily imply a regular proceeding in a court of justice or after the manner of such courts; and this view had been adopted and applied in the construction of the Fourteenth Amendment. The difficulty of Mr. Justice Blatchford's view becomes apparent if it is applied to the taking of the property of the citizen by taxation, by assessments for public improvements, or by administrative measures under the police power; or to restraint of the person made necessary by our immigration laws. "In judging what is due process of law," said Mr. Justice Bradley, "respect must be had to the cause and object of the taking, whether under the taxing power, the power of eminent domain, or the power of assessment for local improvements, or none of these: and if found to be suitable or admissible in the special case, it will be adjudged to be due process of law; but if found to be arbitrary, oppressive and unjust, it may be declared to be not 'due process of law.'"

The decision in the Minnesota Rate Case inevitably led to repeated efforts to secure review by the courts

¹ *Murray's Lessee v. Hoboken Land and Improvement Co.*, 18 How. 272. [1856.]

of rates fixed by statute or the orders of public commissions.

After an unsuccessful effort by a friendly litigation to have a particular rate declared unreasonable,¹ the question next arose in the great case of *Reagan v. Farmers Loan & Trust Co.*,² noteworthy because it was the first successful effort to enjoin the enforcement of rates fixed by a commission.

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The question was squarely raised, for the defendant denied the power of the court to entertain the inquiry at all, and insisted that the fixing of rates for carriage by a public carrier was a matter wholly within the power of the legislative department of the government and beyond examination by the courts. To this the court through Mr. Justice Brewer answered: "The province of the courts is not changed, nor the limit of judicial inquiry altered, because the legislature instead of the carrier prescribes the rates. The courts are not authorized to revise or change the body of rates imposed by a legislature or a commission; they do not determine whether one rate is preferable to another, or what under all circumstances would be fair and reasonable as between the carriers and the shippers; they do not engage in any mere administrative work; but still there can be no doubt of their power and duty to inquire whether a body of rates prescribed by a legislature or a commission is unjust and unreasonable, and such as to work a practical destruction to rights of property, and if found so to be, to restrain its operation."

The complainants challenged the tariff as a whole and the court's inquiry was limited to its effect as a whole. The facts were thus stated by the court:

¹ *Chicago & Grand Trunk Railway Co. v. Wellman*, 143 U. S. 339. [1892.]

² 154 U. S. 362 [1894.]

The cost of this railroad property was \$40,000,000; it cannot be replaced to-day for less than \$25,000,000. There are \$15,000,000 of mortgage bonds outstanding against it, and nearly \$10,000,000 of stock. These bonds and stock represent money invested in the construction of this road. The owners of the stock have never received a dollar's worth of dividends in return for their investment. The road was thrown into the hands of a receiver for default in payment of the interest on the bonds. The earnings for the last three years prior to the establishment of these rates were insufficient to pay the operating expenses and the interest on the bonds. In order to make good the deficiency in interest the stockholders have put their hands in their pockets and advanced over a million of dollars. The supplies for the road have been purchased at as cheap a rate as possible. The officers and employes have been paid no more than is necessary to secure men of the skill and knowledge requisite to suitable operation of the road. . . . The actual reduction by virtue of this tariff in the receipts during the six or eight months that it has been enforced amounts to over \$150,000.

Upon these facts the Court said:

A general averment in a bill that a tariff as established is unjust and unreasonable, is supported by the admitted facts that the road cost far more than the amount of the stock and bonds outstanding; that such stock and bonds represent money invested in its construction; that there has been no waste or mismanagement in the construction or operation; that supplies and labor have been purchased at the lowest possible price consistent with the successful operation of the road; that the rates voluntarily fixed by the company have been for ten years steadily decreasing until the aggregate decrease has been more than fifty per cent; that under the rates thus voluntarily established, the stock, which represents two-fifths of the value, has never received anything in the way of dividends, and that for the last three years the earnings above operating expenses have been insufficient to pay the interest on the bonded debt, and that the proposed tariff, as enforced, will so diminish the earnings that they will not be able to pay one-half the interest on the bonded debt above the operating expenses; and that such an averment so supported, will, in the absence of any satisfactory showing to the contrary, sustain a finding that the proposed tariff is unjust and unreasonable, and a decree reversing it being put in force.

In deciding whether a tariff is so unreasonable and unjust as practically to destroy the value of the carrier's property, it is of course essential to fix the standard or principle upon which that value is to be determined.

Upon this question the Reagan case is indecisive. Some of the language suggests that cost of the property is the proper measure of its value; other language, cost of replacement; and still other language, present value. The question was left for discussion in the later cases.

The Reagan case had dealt with the effect of the tariff of rates as a whole. Similar questions arose in *St. Louis and San Francisco Railway v. Gill*,¹ where it was decided that the correct test was the effect of the rates on the whole line of the carrier's road, and not the effect upon that portion which was formerly a part of one of the consolidating roads; that a company cannot claim the right to earn a net profit for every mile of road, nor attack as unjust a regulation which fixes a rate at which some part would be unremunerative; that the earnings of the entire line must be estimated as against all its legitimate expenses under the operation of the act within the limits of the State. The last qualification presents a new difficulty, — that of severing a railroad into parts divided by the imaginary state lines. The later effort to segregate intrastate and interstate business has led to difficult problems still in process of solution. The Gill case was a suit for a penalty, and the court in referring to Justice Miller's statement in the Minnesota Rate cases that the rates were binding until judicially determined to be void, added that in cases where the legislature itself fixed the rates, a bill in equity was impracticable because there was no public functionary or commission which could be made to respond, and the companies, if they were to have any relief, must have the right to raise the question by way of defense to an action for penalties. This remark was unneces-

¹ 156 U. S. 649. [1895.]

sary to the decision, since the result of the case on the facts was against the carrier. The remedy by injunction to restrain legal officers of the state from prosecuting, came later.

The same principle that applies to the case of a carrier, applies also to a turnpike company. In *Covington, etc., Turnpike Company v. Sandford*,¹ the court held that the facts that the tolls for several years prior to 1890 had not admitted of dividends greater than 4 per cent on the par value of the stock; that the proposed reduction would so diminish the income of the company that it could not maintain its road, meet its ordinary expenses, and earn any dividends whatever for stockholders, showed that the constitutional rights of the turnpike company were violated. Justice Harlan was careful to say that a mere failure of the rates to suffice to earn four per cent on the stock would not justify holding the rates to be void. "It cannot be said," he added, "that a corporation is entitled, as of right, and without reference to the interests of the public, to realize a given per cent upon its capital stock. . . . The public cannot properly be subjected to unreasonable rates in order simply that stockholders may earn dividends." In dealing with the question how the reasonableness of rates was to be ascertained, the court was not very satisfactory. The inquiry was said to involve a consideration of the right of the public to use the road on paying reasonable tolls, and also of the reasonable cost of maintaining the road in good condition for public use, and the amount that may have been really and necessarily invested in the enterprise. It was held that there might be other circumstances, not then necessary to state; that each case must depend upon

¹ 164 U. S. 578. [1896.]

its special facts; and justice might require different rates for different roads. In short, the opinion merely holds that rates must be reasonable and fair both to the public and the company and must not be so low as practically to deprive the company of its property. No standard was fixed, and the case decided only that the particular rates infringed the constitutional provision. The language of the court indicates that it is the actual and necessary investment of the company that is to be considered. This seems to mean the actual necessary cost as distinguished from cost of replacement or present value.

The results reached up to this point may be thus summarized. State enactments or regulations establishing rates that will not permit of the carrier earning such compensation as under all the circumstances is just to it and the public, infringe the provisions of the Fourteenth Amendment; and the question whether rates are so unreasonably low as to deprive the carrier of its property cannot be conclusively determined by the legislative authority of the state, but may be the subject of judicial inquiry.

III

These general principles do not go far to solve the question in a particular case. The decision in the *Nebraska Maximum Rate Cases*¹ took a further step. It was contended on behalf of the State that the compensation to be allowed the carrier after payment of operating expenses was purely a question of public policy to be determined by the legislature and not by the courts. "It cannot be successfully contended," said counsel for the State, "that so long as the rate

¹ *Smyth v. Ames*. *Smyth v. Smith*. *Smyth v. Higginson*, 169 U. S. 466. [1898.]

fixed pays something above operating expenses to the corporation for the carrying of property, it amounts to the taking either of the use or of the property." "It must follow then, that, so long as the rate fixed by the law will pay the operating expenses when economically administered, and something in addition thereto, the power of the court ends, and the extent to which rates must produce profits is one of political policy." In short, the contention was that the right of property in a railroad consisted in the title and possession and the privilege to operate it economically, with the right to such additional compensation, however small, as the legislature chose to allow from time to time. The successful maintenance of this proposition would plainly have ended the control of the courts over the subject. It went to the very root of the matter. It might logically be contended that a property right that was subject to legislative regulation, as settled by the Granger Cases, was not taken away when the legislature did in fact regulate; but it was nevertheless true that the power to regulate was not a power to destroy. The case involved really a definition of the word "property" as applied to a common carrier; and in view of the earlier decisions, the court very naturally answered the contention of counsel by saying:

The idea that any legislature, State or Federal, can conclusively determine for the people and for the courts that what it enacts in the form of law, or what it authorizes its agents to do, is consistent with the fundamental law, is in opposition to the theory of our institutions. The duty rests upon all courts, Federal and State, when their jurisdiction is properly invoked, to see to it that no right secured by the supreme law of the land is impaired or destroyed by legislation. This function and duty of the judiciary distinguishes the American system from all other systems of government. The perpetuity of our institutions and the liberty which is enjoyed under them depend, in no small degree, upon the power

given the judiciary to declare null and void all legislation that is clearly repugnant to the supreme law of the land.

The definition of "property" becomes, therefore, in the last resort a matter for the courts.

The Nebraska case involved also the question of rates within a state over railroads extending through other states. It was said that rates reasonable in Iowa might be unreasonable in Nebraska since the density of population, and hence of traffic, might be greater in the former, while the cost of construction and maintenance might be less. It was held that the reasonableness of rates on traffic wholly within the state must be determined without reference to the interstate business done by the carrier or to the profits derived from it. "The argument that a railroad line is an entirety; that its income goes into, and its expenses are provided for out of a common fund, and that its capitalization is on its entire line, within and without the state, can have no application where the State is without authority over rates on the entire line, and can only deal with local rates and make such regulations as are necessary to give just compensation on local business." Whether the attempt thus made to sever the intrastate from the interstate business can be carried out successfully is a question involved in later litigation and not yet settled. It involves a determination of the proportion of value of plant and cost of traffic to be attributed to the lines within the state. In view of the interaction of the various elements of cost and of revenue within and without the state upon each other, the problem is most difficult, and may prove possible of solution only by an approximation.

The Court in the Nebraska case considered also the question on what amount the railroads were en-

titled to earn a revenue. The companies contended that they were entitled to such rates as would enable them at all times, not only to pay operating expenses, but also to meet the interest regularly accruing upon all outstanding obligations and to justify a dividend on all their stock; less than that, it was said, would deprive them of property without due process of law. The court held, however, that this contention practically excluded from consideration the fair value of the property used, omitted the right of the public to be exempt from unreasonable exactions, would justify the railroad in trying to earn interest on bonds in excess of its fair value and dividends on fictitious capitalization. The court was still indefinite in laying down the basis of the valuation on which earnings might fairly be had. It said the rights of the public would be ignored if rates were exacted without reference to the fair value of the property used for the public or the fair value of the services rendered. But these two bases of calculation are far from leading to the same result. To base rates upon the value of the property, involves the value of the plant in its entirety and the net result of all the rates on thousands of items. To base them upon the value of the services rendered, involves a consideration only of particular items and may involve a consideration of the value of the services to the shipper. The two methods are incommensurate. What the Court decided was that the basis of all calculations as to the reasonableness of rates must be the fair value of the property used; that in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of the bonds and stock, the present as compared with the original cost of construction, the probable earning

capacity of the property under the particular rates prescribed, and the sum required to meet operating expenses, are all matters for consideration, to be given such weight as may be just and right in each case. Justice Harlan was careful to add: "We do not say that there may not be other matters to be regarded in estimating the value of the property."

Many of these elements required and have received and are destined to receive further definition and analysis. What other elements are to be considered may never be finally settled, so infinitely various are the circumstances that distinguish each case as it arises.

The court soon had occasion to apply the rule, and the opinion shows no greater certainty in the basis of valuation.¹ A water company insisted that the court should consider the cost of the plant, the annual cost of operation including interest on money borrowed and reasonably necessary to be used in constructing the same; the annual depreciation of the plant from natural causes resulting from its use; and a fair profit to the company either by way of interest on the money expended for the public use, or upon some other fair and equitable basis. All these matters the court conceded ought to be taken into consideration, but it held that the basis of calculation was defective in not requiring the real value of the property and the fair value in themselves of the services rendered to be taken into consideration. The opinion, however, points to no more definite rule. "What the company is entitled to demand," says the court, "in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public." This adopts present value

¹ *San Diego Land Co. v. National City*, 174 U. S. 739. [1899.]

as the standard, but leaves unsettled how the reasonable value of the property is to be ascertained, and what is a fair return.

The opinion in the next case¹ sought to make a distinction between public service companies and companies which without any intent of public service have placed their property in such a position that the public has an interest in its use. As to the first class, Justice Brewer said the owner intentionally devoted his property to the discharge of a public service, and undertook that which is a proper work for the State, and might be said to accept voluntarily all the conditions of public service which attach to like service performed by the State itself. As to the second class the owner placed his property in such a position willingly or unwillingly, that the public acquire an interest in its use, but he submits only to those necessary interferences and regulations which the public interests require. Of the former it was said that since the State was not guided solely by a question of profit but might conduct the business at a loss having in view a larger general interest, so perhaps an individual who had shown his willingness to undertake the work of the State might be held to perform that service without profit. The suggestion was put in the form of an interrogation, since it was confessedly unnecessary in the pending case to determine the question. It seems to conflict with *Smyth v. Ames*, and the court has never yet decided that the legal right of regulation goes to this extent. The decided case involves a corporation of the other class, which was not doing the work of the State, was not performing a public service, and had acquired from the State none of its governmental powers. The business was that of a

¹ *Cotting v. Kansas City Stock Yards Co.*, 183 U. S. 79. [1901.]

stock yard at Kansas City. The business was held to be so affected with a public interest, being at the gateway of a great commerce of which it was an important if not a necessary adjunct, that its charges like those of a grain elevator were subject to public regulation. But the court said the "business in all matters of purchase and sale is subject to the ordinary conditions of the market and the freedom of contract. He (the owner) can force no one to sell to him, he cannot prescribe the price which he shall pay. . . . If under such circumstances he is bound by all the conditions of ordinary mercantile transactions, he may justly claim some of the privileges which attach to those engaged in such transactions. And while he cannot claim immunity from all state regulation, he may rightfully say that such regulation shall not operate to deprive him of the ordinary privileges of others engaged in mercantile business." The difference in practical result suggested in the opinion is that in the case of a business affected with a public interest altho not devoted to the public service, the state's regulation of charges is not to be measured by the aggregate of profits determined by the volume of business, but by the question whether any particular charge to an individual dealing with him is, considering the service rendered, an unreasonable exaction. "The question is not how much he makes out of his volume of business, but whether in each particular transaction the charge is an unreasonable exaction for the services rendered. He has a right to do business. He has a right to charge for each separate service that which is reasonable compensation therefor, and the legislature may not deny him such reasonable compensation, and may not interfere simply because out of the multitude of his transactions the amount of his profits

is large. Such was the rule of the common law even in respect to those engaged in a quasi public service independent of legislative action. In any action to recover for an excessive charge, prior to all legislative action, who ever knew of an inquiry as to the amount of the total profits of the party making the charge ? ”

The distinction suggested by Justice Brewer and his expressions with reference to the subject are interesting and suggestive; but the opinion was not the opinion of the court. Six out of nine judges assented to the judgment upon the ground that the Kansas statute violated the Fourteenth Amendment because it applied only to one stock-yards company, and not to other corporations engaged in like business in Kansas, and therefore denied to that company the equal protection of the laws. They were careful to say that they expressed no opinion upon the question whether it deprived the company of its property without due process of law. This, and not Justice Brewer's elaborate opinion, expresses the view of the court. Under the facts of the case it amounted to saying that the answer was doubtful to the question whether rates that enabled a company to earn 5.3 per cent on the value of the property used for stock-yards purposes, instead of about 10 per cent previously earned, amounted to depriving it of property without due process of law; the propriety of any rate of return was not decided.

The suggestion that a public service company, doing the work of the state, might properly do it for an unremunerative rate bore fruit in the Minnesota Coal Rate case.¹ That case is important because it sustained an unremunerative rate upon coal fixed by the state commission. The ruling is in conflict with the reasoning of *Smyth v. Ames* (the Nebraska

¹ *Minneapolis & St. Louis R'd Co. v. Minnesota*, 186 U. S. 257. [1902.]

cases) and the court recognizes the necessity of explaining the distinction. It says that while the reasonableness or unreasonableness of rates for intrastate traffic must be determined without reference to the interstate business, it does not follow that the companies are entitled to earn the same percentage of profits on all classes of freight carried. This hardly justifies the conclusion that the carrier may be compelled to carry some goods at a loss; for if so, the power to select those goods involves a power to discriminate quite at variance with fundamental principles; if the railroad can be compelled to carry coal at a loss, it may also be compelled to carry other goods at a loss; and since it is entitled to a fair return upon the whole business, this loss must be made up by the imposition of a heavier rate on other goods than would naturally fall thereon; the public authorities are then permitted to discriminate against some shippers and in favor of others, a discrimination which has always been condemned, and was held to be illegal by the New Jersey Supreme Court,¹ upon the ground that carriers were engaged in a public employment, three years before the United States Supreme Court decided the Granger Cases.

The court in the Minnesota Coal Rate Case sought to justify the losing rate upon the ground that for purposes of ultimate profit and of building up a future trade, railways carry both freight and passengers at a positive loss. No doubt such is the fact, and if railways were to be left free to fix rates according to their own pleasure, and to discriminate at their pleasure between shippers, the practice of sowing seed to reap a future crop might be permissible. The difficulty is that considerations of that kind are not reducible to a legal rule, but involve considerations of business policy.

¹ *Messenger v. Pennsylvania R. R.* 700, 407. [1873.]

It is not only difficult to determine how much of the value of an entire railroad shall be attributed to the portion within a state, but since even that portion is used in part for intrastate and in part for interstate traffic, the value of the property used for local and for through traffic must also be determined; and since all the business is done by the same men, with the same equipment, the total cost of conducting the business must also be apportioned. As might be expected from the intricacy of the problem, the results thus far reached are not satisfactory. In the Gill case it was held that every mile need not pay; from which it would seem to result that the system must be treated as an entirety, and that losses on local traffic might be balanced by profit on through traffic or vice versa. *Smyth v. Ames* decided the contrary, and made necessary the determination of the proper basis for apportionment of value and cost. The South Dakota case¹ rejected gross receipts as a proper basis for the apportionment. The other basis suggested is that of the volume of traffic determined according to ton mileage. The tendency of the more recent cases in the lower federal courts seems to be in the direction of apportioning cost and value according to gross receipts. The question is still unsettled in the Supreme Court. In the Florida Phosphate cases,² the court leaned to the ton mile basis, at least as far as concerns the cost of doing the business.

The question to be decided when the protection of the Fourteenth Amendment is invoked, is whether the rates as a whole afford a sufficient return, or are so low as to amount to confiscation. When, as in the

¹ *Chicago, M. & St. P. R'y. v. Tompkins*. 176 U. S. 167.

² *Atlantic Coast Line v. Florida*, 203 U. S. 256. [1906.] *Seaboard Air Line v. Florida*, 203 U. S. 261. [1906.]

South Dakota Coal case or the Florida Phosphate cases, the rate upon a single article only is involved, it is impossible to determine the effect of that single rate upon gross or net returns on the entire traffic, and hence impossible to prove that the rate fixed is so low as to amount to confiscation. Such was the result in the Florida Phosphate cases, and it is quite conceivable that the court might be forced to decide that one unremunerative rate after another was not in conflict with the property right of the carrier, until an entire schedule of unremunerative rates might have been sustained. In the Phosphate cases the question did not arise, since the rate permitted exceeded the average receipts per ton per mile under the previous tariff. But the possibility of the result I have indicated illustrates the danger of the decision in the Minnesota Coal case, that a carrier may be required to carry a particular commodity at an unremunerative rate.

IV

The reasonable value of the property used was by 1903 pretty well recognized as the proper standard upon which returns may be earned. In *San Diego Land & Town Co. v. Jasper*¹ the court said: "It no longer is open to dispute that under the Constitution what the company is entitled to demand, in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public." That standard is adopted as against a standard based on actual cost, less depreciation. Actual cost, selling price, valuation for taxation, may all be evidence of the actual value. But actual value may sometimes be enhanced by the

¹ 189 U. S. 439. [1903.]

fact that the plant is larger than is needed. Is the company entitled to earn a revenue on an unnecessary expenditure? To this question, the court answers, no. Upon the value as fixed by the local board, rates were fixed with the intention of securing a yield of 6 per cent. The court found no sufficient evidence that this rate was confiscatory. But the local board had fixed the rates as if the water company supplied the whole 6000 acres outside the city for which the works were intended. In fact it supplied less, and its receipts were therefore less than the supervisors estimated. The result might give the appellant less than 6 per cent on the value of the plant. But the court said that if the plant was built for a larger area than it could supply, the Constitution did not require that two-thirds of the contemplated area should pay a full return. The case is therefore important because it holds that a failure to pay 6 per cent on present value is not necessarily decisive of the question whether rates are confiscatory so as to violate the constitutional provision. The present value on which the company is entitled to a return is only the present value of what is reasonably necessary for the public service.

A water company in California¹ was incorporated under a statute which empowered the county board of supervisors to regulate rates, but not to reduce them so low as to yield to stockholders less than 1½ per cent a month on the capital actually invested. After the company had invested about a million dollars in its plant, a new statute empowered the supervisors to so adjust the rates as to yield not less than 6 nor more than 18 per cent per annum upon the value of the property actually used and useful

¹ *Stanislaus County v. San Joaquin and King's River Canal and Irrigation Co.* 192 U. S. 201. [1904.]

for the supply of water. The court held that there was no contract the obligation of which was impaired, and that even if there was a contract, the legislature might alter or amend the original statute under its reserved power. For our present purpose the important point decided is that it is not a confiscation nor a taking of property without due process, nor a denial of the equal protection of the laws, to fix water rates so as to give an income of six per cent upon the then value of the property actually used, even tho the company had prior thereto been allowed to fix rates that would secure to it 18 per cent upon the capital actually invested. The right of property of a water company under the California statute, so far as it is protected by the Fourteenth Amendment, is no more than a right to earn 6 per cent on present value, regardless of actual investment or previous statutory provisions permitting a larger return.

The method of determining present value still remains to be settled. To ascertain the value of tangible property, such as lands or buildings, for the purpose of determining the just compensation required to be made when it is taken for public use, has always been a sufficiently difficult question. To ascertain the value for the purpose of determining whether a schedule of rates is confiscatory is more difficult still.

In the *Knoxville Water Company case*,¹ the value had been based on cost of reproduction, to which there was added \$10,000 for organization and promotion expenses, and \$60,000 for value as a going concern. The court declined to decide upon the propriety of including these two items in the estimate, and expressly reserved them for consideration when the question necessarily arose. The *Knoxville case* turned

¹ *Knoxville v. Water Co.*, 212 U. S. 1. [1909.]

upon the failure of the court below to make a proper deduction for depreciation arising from age and use. It was held that the water company was not entitled to value an old plant as if it were a new one. The more interesting question was as to the right of the company to add to the present value of its plant the cost of what had been lost through destruction or obsolescence, and what had been impaired in value altho still in use. There was little discussion of the question in the opinion, no doubt because the circumstances of the particular case did not call for discussion. The court held that it was the duty of the company to use enough of its earnings to keep its plant good, before coming to the question of the amount of its profits, and that if it failed to keep its investment unimpaired, whether because it declared unwarranted dividends on over-issues of securities, or because it failed to exact proper prices for its output, it could not enhance the present value of its property by the addition of the costs of its mistakes. The question is likely to arise, as it has already in some cases, in a more difficult form, where fruitless but necessary experiments have been made, or plant has become obsolete in a rapidly advancing industry before it could possibly be made good out of current earnings. It arose before the Interstate Commerce Commission, in the converse case where the corporation, in order to reduce its apparent rate of earnings, sought to charge against current earnings the cost of betterments from which it was likely to profit for years to come. The Supreme Court approved the ruling of the Interstate Commerce Commission and held that the instrumentalities that are to be used for years should not be paid for by the revenues of a day or year.¹ A public

¹ *Illinois Cent. R. R. v. Inter. Com. Comm.* 206 U. S. 441. [1907.]

service company cannot use more money in a year than is required for actual depreciation, and carry the excess as an addition to capital for the purpose of estimating the amount on which it is entitled to dividends, in determining whether a rate is confiscatory.¹ Novel questions of this character will arise with increasing frequency, and require the most careful consideration. Like most other questions in every department of the law, they are in their origin rather questions of fact than questions of law, altho in course of time the rules become settled and thus become rules of law. In their origin, and as yet, many questions are questions of sound business management and engineering science. The law prescribes reasonable returns upon a reasonable valuation. What is a reasonable return and what is a reasonable valuation must vary with the circumstances of each particular case.

The basis of present value adopted in the Knoxville Water Company case was cost of reproduction less an allowance for depreciation in order to make up the difference between the value of new and old. Such a basis in the case of land, especially in a growing city, tends to make the cost of reproduction exceed the original cost, and in the case of railroads especially is almost sure to make present value greatly in excess of cost to the companies. It has therefore been contended with much ingenuity and force that the basis for rate regulation should not exceed the capital actually invested. In *Willcox v. Consolidated Gas Co.*,² it was argued that one gas company should not be permitted to charge more than another for the sole reason that movements of population, uninfluenced by either

¹ *Louisiana R. R. Comm. v. Cumberland Tel. Co.*, 212 U. S. 414. [1909.]

² 212 U. S. 19. [1909.]

company, had caused the site of its plant to be more valuable if vacated and sold; for it was said that altho the fortunate company was entitled to obtain the full value of the land when sold, the unrealized profit meanwhile did not represent profit used in the manufacture and distribution of gas, but rather represented wealth which the manufacture and distribution of gas keeps out of use. This argument seems sound. The circumstances of the case did not call for an answer by the court. It did, however, distinctly reject the basis of actual cost even in the case of land. It held that the value of the property must be determined as of the time when the inquiry was made regarding rates; that the company was entitled to the benefit of any increase of value. That is in harmony with the general rule of law which permits the owner of real estate to profit by any increase in the value of his land. Obviously, however, if we are to uphold the rule that a public service corporation is entitled only to a reasonable return and that the public are entitled to be served at reasonable rates, we must apply the rule of reasonableness to the amount of the investment, as was done in the San Diego Water case. The court recognized this, for it said there might be an exception to the rule where the property had increased so enormously in value as to render a rate permitting a reasonable return upon such increased value unjust to the public. This makes the reasonableness of the amount allowed for value of the property depend on the reasonableness of the rate to the public; but since the rate must afford a reasonable return to the company also, we are at once reasoning in a circle. The basis suggested by Mr. Whitney, in his argument as counsel, seems a better one,—that the value allowed should be the estimated cost

of replacing the land in use with other land capable of accomplishing the same result. Probably no one would contend that if a gas company had been so fortunate as to locate its works at the corner of Broad and Wall Streets, and its land had attained the enormous value that there prevails, it should be entitled to a return from its gas sales on the present value of the site. Prudent management would require removal to a less expensive site better adapted for the business.

The more difficult question that arose in the Gas Company case was the valuation of the franchise. As to the general question of the propriety of including the value of the franchise in the valuation of the property, the opinion gives little light. All that was decided was that it was proper to include in the valuation, the value attributed with the consent of the state to the franchises at the time of the consolidation of the companies, upon which investors had relied; and that it was wrong to hold, as the court of first instance did, that the value of the franchise had increased in the same ratio as the value of the tangible property. When it came to the general question, the court said that to allow for increased value of the franchise was too much a matter of pure speculation and also opposed to the principle upon which such valuation should be made. Whether the court meant merely that the evidence in the particular case was not sufficiently certain to justify the increased valuation, or whether it meant that upon principle the valuation of the franchise ought not under ordinary circumstances to be included, the opinion leaves in doubt.

The court calls attention to the fact that the franchise was subject to the legislative right to so regulate the price of gas as to permit no more than a fair return upon the reasonable value of the property. It would

have been but a step to hold that to base the return to the company upon the value of such a franchise would be impossible, since the value of the franchise in turn depended on the rates. The two being dependent, one on the other, neither could furnish a substantial basis for fixing the other. As Judge Savage well said in a case in Maine ¹ "to say that the reasonableness of rates depends upon the fair value of the property used and that the fair value of the property used depends upon the rates which may be reasonably charged seems to be arguing in a circle." There is, however, as he points out, a sense in which the value of the franchise must be considered. It is the franchise, the right to operate and if possible to earn a dividend, that makes the difference between a lot of junk, — old rails, pipes, and the like, — not worth recovering from their situation in and upon the ground, and a completed plant, railroad, water works, gas works, as the case may be. This is a part of the value of a going concern, the allowance for which the court refused to pass upon in the Knoxville Water Co. case. Even tho the franchise is revocable, the fact that the plant has a legal right to exist gives added value to the physical structures. The value of a rightfully existing structure which may be lawfully used is very different from the value of the same structure without the legal right to use it for the purpose for which it was assembled. Quite recently, in the valuation of the Omaha Water Works,² the court has expressly approved an appraisal of the value as a going concern. "The difference between a dead plant and a live one," said Justice Lurton, "is a real value, and is independent of any franchise to

¹ *Brunswick & T. Water District v. Maine Water Co.*, 59 Atl. Rep. 537. [1904.]

² *Omaha v. Omaha Water Co.*, 218 U. S. 180. [1910.]

go on, or any mere good will as between such a plant and its customers."

Altho ordinarily the value of a franchise is not enhanced by the prospective profit from any particular schedule of rates, there is an exception where by reason of a contract protected by the contract clause of the federal constitution, the corporation may continue to charge specified rates for a definite time.¹ The courts insist on finding the elements of a contract as they would between individuals. There must be an agreement upon sufficient consideration. Where the contract is made by a municipality, there must be legislative authority in the municipality to make the contract; and such legislation is construed strictly in favor of the public; authority to fix and determine rates does not authorize a municipality to make a bargain by which it ties itself up for the future.² Another exception may be suggested, — the investment by present owners in reliance upon the continuance or value of the franchise. To what extent, if at all, this element may enter into the calculation has not been expressly decided, nor does the Gas Company case settle the question. It settles indeed that under some circumstances such allowance must be made; but no attempt is made to define the circumstances with precision.

¹ *Los Angeles v. Los Angeles City Water Co.*, 177 U. S. 558 (1900); *Detroit v. Detroit Citizens Street Railway Co.*, 184 U. S. 368; *Cleveland v. Cleveland City Ry. Co.*, 194 U. S. 517 (1904); *Cleveland v. Cleveland Electric Railway Co.*, 201 U. S. 529 (1906); *Vicksburg v. Vicksburg Water Works Co.*, 206 U. S. 496 (1907). See also *New Orleans Water Works Co. v. Rivers*, 115 U. S. 674 (1885); (sustaining an exclusive right to supply water); *New Orleans Gas Co. v. Louisiana Light Co.*, 115 U. S. 650 (1885); (sustaining an exclusive right to supply gas); *Walla Walla v. Walla Walla Water Co.*, 172 U. S. 1 (1898).

² *Freeport Water Co. v. Freeport City*, 180 U. S. 587 (1901); *Danville Water Co. v. Danville City*, 180 U. S. 619 (1901); *Rogers Park Water Co. v. Fergus*, 180 U. S. 624 (1901); *Knoxville Water Co. v. Knoxville*, 189 U. S. 434; *Home Telephone Co. v. Los Angeles*, 211 U. S. 265 (1908).

The court held that the Gas Company case was not one for the valuation of good will because the complainant had a monopoly in fact and the consumer must take gas from it or go without; he must resort to the old stand whether he would or no. The court held also that there was no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises; the amount of risk, the locality where the business is conducted, the rate expected and usually realized there upon investments similar in character, were all mentioned as factors, and it was held that under the circumstances of the gas business in the City of New York, six per cent was a proper return.

The element of wages of superintendence, which Mr. Whitney in his argument conceded must be covered by the returns to the company, was left out. In one sense this is not a return upon capital but wages of labor, and if it were possible for earnings due to the skill with which the business is managed to be secured to those alone whose skill produced the result, perhaps no more need be said. Practically, however, the earnings depend in part, sometimes in large part, not upon the skill in actual present-day management, but upon the satisfaction with which the public has been served in the past, perhaps by men long since dead. Given equal and reasonable rates, one company will be able to earn large dividends, and another perhaps unable to pay its way; and this result may be due not to any less efficient management, but merely to the fact that one has been long in satisfactory operation while the other is new and not yet in vogue. The greater earnings of the one may even be due to the mere caprice of fashion. But to whatever

cause it is due, difficulty will arise unless allowance be made, either by increasing the capital valuation on which the company is permitted to earn a return, by way of a valuation of a going concern or the value of the probability of an already assured income, or else by allowing an additional return on the valuation minus this increment, by way of extra compensation for the greater skill or the greater satisfaction with which it serves the public. Even in the case of so close a monopoly as the Gas Company in New York City, it is not impossible that some of its earnings may have been due to this cause; for altho it had a monopoly of the supply of gas through pipes in the streets, it may have had competition, in the supply of light, heat, and power, from the electric companies. Altho legally permissible, it would often be impracticable to cut down rates to a level that would afford a fair return to one company upon a valuation that failed to take into account the element of value of a going concern or an assured income, without ruining its weaker competitor. In some cases such lowering of rates would prove inadvisable, especially in the case of railroads. One road may through fortunate investments, the discovery of valuable minerals along its route, the opening of fertile territory, and a rapid increase of population, prove a highly profitable investment; another at the same rates may barely pay its way; yet to cut down rates on the prosperous road so as to reduce its high dividends to a normal level, would emphasize and accentuate the advantage already possessed by those along its line over those along the line of the less prosperous road. Either the prosperous road must be allowed to earn a higher return upon the valuation or the valuation must allow for these elements.

Up to the present time, the United States Supreme Court has not been called upon to decide what elements are proper to be considered in determining the present value of a plant of a public service company. That the value of the plant as a going concern, not only ready for business but with business actually established, is greater than the bare cost of reproduction of the physical plant, is recognized by cases in other courts. It must be so, leaving out of view altogether the element of good will, which in the case of a strict monopoly ought to be disregarded. A going concern has necessarily expended money in various ways aside from the cost of physical plant in order to get going. The cost of promotion of the enterprise, of corporate organization, of obtaining the necessary franchises, permissions, and consents, of securing the necessary connections with other companies by rail or wire; the cost of experiments necessary in every new industry, and the often rapid substitution of improved appliances before the cost of the old can have been recouped out of earnings; the cost of developing the business including the oft-times necessary loss attending the incomplete stage of the plant, or the introduction of new appliances and methods; the cost of financing the enterprise, including interest on capital sunk before any returns begin to come in, — all go to make up the cost of a complete going plant, and are all expenses that a new enterprise must needs incur.

The United States Supreme Court has not as yet been called upon to analyze the costs of operation and to decide what items of cost of operation ought to be included in the annual charges before the profit can be ascertained. Professor Wyman has dealt with

the subject in a satisfactory way¹ and the scope of this article does not call for its further discussion.

The question presented by a schedule of rates under the Fourteenth Amendment is whether the schedule permits a fair return upon a reasonable valuation or is so low as to amount to confiscation. This involves different considerations from those involved when the only question is the propriety of the rate on a single article. It cannot be foretold what effect a change of certain rates, for example on coal or gas, will produce on the net revenue of the business as a whole. This difficulty has been met by the adoption of a tentative course, leaving it for time and experience to determine whether constitutional rights have been infringed.²

A most serious difficulty is presented by our dual form of government. It is beyond the scope of the present discussion to treat the numerous cases dealing with the commerce clause, and the question what is interstate and what is intrastate commerce. The net return to a railroad company, — and it is to railway traffic that the questions most frequently relate, — depends on the relation between its income from whatever source derived and its outgoes whether for the conduct of interstate or intrastate business. The two are inextricably intermingled, and the problem of preserving the rights and powers of both the state and the federal governments is one of the problems of the future.

FRANCIS J. SWAYZE.

SUPREME COURT
OF NEW JERSEY.

¹ Wyman on Public Service Corporations, § 1150 ff.

² Willcox v. Consolidated Gas Co. 212 U. S. 19; Northern Pacific R'y v. North Dakota. 216 U. S. 579.

NATIONAL AND DISTRICT SYSTEMS OF COLLECTIVE BARGAINING IN THE UNITED STATES

SUMMARY

I. Rapid increase of systems of collective bargaining after 1897, 425. — List of systems established and terminated from 1898 to 1911, 427. — II. Success or failure of these systems to some extent independent of the character of the system, 429. — Classification of systems on basis of area of wage rates, 431. — Greater success of systems under which national or district rates are fixed, 433. — III. Desire of employers to bring working rules of national union under joint determination, 435. — Difficulty of achieving this under systems in which only local rates are fixed, 438. — IV. Tendencies favoring establishment of national and district rates of wages, 440. — Circumstances under which systems with only local rates may succeed, 443.

I

The year 1898 marks the opening of what is in many ways a distinct period in American trade-union history. The rapid increase in the number of unionists which began in that year was accompanied, not only by important changes in the structure and aims of American trade unionism, as has always been the case in similar periods of expansion, but also by changes in the relations of the unions to employers. The establishment of a large number of national and district systems of collective bargaining has been one of the most characteristic features of the period.

In 1897 national and district systems of collective bargaining were in force in the iron, tin, and steel trade, in the stove-molding trade, and in the flint glass, glass bottle, and window glass trades. All of these systems had been established before the industrial depression which began in 1893 and which entirely

stopped the growth of trade unionism. In 1897 the annual conferences between the Amalgamated Association of Iron, Steel, and Tin Workers and various groups of manufacturers had been in existence more than a quarter of a century. For almost as many years the unions in the glass trades — the Flint Glass Workers, the Glass Bottle Blowers, and the Window Glass Workers — had held conferences with more or less formally organized groups of employers for settling the conditions of employment. The well-known system of collective bargaining between the Iron Molders' Union and the Stove Founders' National Defense Association was established in 1891.

With the revival of industry and the increase in the number of unionists in 1898, industrial disputes increased. The number of strikes and lockouts in 1898 was 1,098, involving 263,219 persons; in 1900, 1,839, involving 567,719, and in 1903, 3,648 involving 887,834.¹ As a result of the increase in strikes, a widespread movement for the peaceful settlement of the conditions of employment was inaugurated. The National Civic Federation held conferences in 1900, 1901, and 1902 on the subject of industrial conciliation. Similar meetings were held by other organizations — notably the National Convention of Employers and Employees at Minneapolis, September 22-25, 1902. Employers' associations were organized in a number of trades for the peaceful settlement of labor questions, and a considerable number of employers' associations formed originally for other purposes began to negotiate with the unions.

As a result of this movement, national and district systems of collective bargaining were established and

¹ Twenty-First Annual Report of the Commissioner of Labor, 1906; *Strikes and Lockouts*, pp. 15, 21.

extended very rapidly for a few years after 1897. The interstate conferences in the Central bituminous coal fields, which had been entirely suspended since 1894, were resumed in 1898. In 1899 the National Founders' Association concluded the New York agreement with the Iron Molders. In 1900 the National Metal Trades' Association entered into a similar agreement with the Machinists; the Longshoremen concluded their first agreements with the Lake Erie Dock Managers and with the Lake Carriers' Association, and the Potters began to hold periodic conferences with the United States Potters' Association. In 1901 the American Newspaper Publishers' Association entered into "arbitration agreements" with the Typographical Union, the Pressmen, and the Stereotypers. In 1902 the United Typothetae and the Pressmen agreed to settle all questions by conference or arbitration, and the Stove Founders' National Defense Association extended their conference system to include the Stove Mounters and the Metal Polishers.

The following list shows the systems of national and district collective bargaining established from 1898 to 1911, and also the years in which certain of these systems terminated: —

	Date of Establishment	Date of Termination
United Mine Workers		
Joint conferences in Central field	1898	
Joint conferences in Southwestern field	1903	
Iron Molders' Union		
with National Founders' Association	1899	1904
Brotherhood of Operative Potters		
with United States Potters' Association	1900	
with Sanitary Potters' Association	1901	
International Longshoremen's Association		
with Lake Erie Dock Managers	1900	1908
with Lake Carriers' Association	1900	1908
with Lumber Carriers' Association	1901	
with Great Lakes Towing Company	1903	

	Date of Establishment	Date of Termination
with Tug and Dredge Owners' Protective Association	1903	
with Pile Drivers' Owners Protective Association	1904	
with Lake Erie Fish Packers and Fish Tug Owners	1905	
International Association of Machinists		
with National Metal Trades Association	1900	1901
American Newspaper Publishers' Association		
Arbitration agreement with International Typographical Union	1901	
with International Printing Pressmen's Union	1901	
with International Stereotypers' and Electrotypers' Union	1901	
with International Photo-Engravers' Union	1905	
United Typothetae		
with International Printing Pressmen's Union	1902	1907
Stove Founders' National Defense Association		
with Stove Mounters' International Union	1902	1907
with Metal Polishers' Union of North America	1902	1909
Structural Steel Erectors' Association		
with International Association of Bridge and Structural Iron Workers	1903	1905
Lake Seamen's Union		
with Lumber Carriers' Association	1903	1908
with Lake Carriers' Association	1903	1908
Marine Engineers' Beneficial Association		
with Lake Carriers' Association	1903	1908
Lithographers' International Protective and Beneficial Association		
with National Association of Employing Lithographers	1904	1906
Coopers' International Union		
with Machine Coopers Employers' Association	1905	
United Hatters of North America		
with National Association of Fur-Felt Hat Manufacturers	1907	1908
Wall Paper Manufacturers' Association		
with Machine Printers and Color Mixers	1909	

An inspection of the list shows that the establishment and extension of systems of collective bargaining went forward rapidly during the years 1898-1905 inclusive. But from 1906 to 1911 only two new systems were established — that of the Hatters and the Fur-Felt Hat Manufacturers in 1907, and that of the Wall Paper Manufacturers and the Machine Printers and Color Mixers in 1909.

II

In considering the causes of the success or failure of different systems of collective bargaining, account must be taken of certain factors which are independent of the kind of system adopted. These factors may be divided into three classes, according as they spring from the personal skill or influence of the men concerned on either side, from the special characteristics of the trade involved, or from the exigencies of the time at which the system is applied. The personal element is, of course, important. A system of collective bargaining may be maintained and strengthened, for a time at least, by the skill of the persons in charge, altho other systems of identical character may quickly break down. In the second place, in an industry in which the unions are very strong, a system of collective bargaining may be maintained altho the system itself is not satisfactory to the employers. Thirdly, the strength of the unions and the desirability to the employer of some peaceful method of settling trade questions varies not only from trade to trade, but also from time to time. In 1897 there were less than half a million unionists in the United States, and in 1904 there were more than two millions. This increase made it difficult for employers in many trades to

secure non-union workmen. In 1899-1903 the establishment and maintenance of some system of bargaining, even if an imperfect one, appeared to many employers to be a desirable consummation. In 1904 the tide of trade unionism slackened, and the number of unionists was greater in that year than in any succeeding year until 1910. The panic of 1907 also materially reduced the hold of the unions on employers. The relatively larger number of dissolutions of systems of collective bargaining which occurred from 1907 to 1909 is explainable by the declining strength of trade unionism.

It is not necessary, however, to adopt the view which is widely held among American unionists that the establishment of systems of collective bargaining was advocated by employers in 1898-1903 merely as a device to prevent rapid increases in wages and the imposition of severe working conditions, and that when the pressure of unionism lessened, employers hastened to put an end to the systems of collective bargaining.¹ It is more reasonable to believe that in 1898-1903 the employers, pressed by the need for workmen and confronted by militant unions, were persuaded by the advocates of industrial peace that there might be established systems of collective bargaining under which the conditions of employment could be reasonably and amicably settled. Experience with the systems of bargaining which they were thus induced to establish soon led employers in several trades to the view that these systems were unsatis-

¹ In his address to the Longshoremen at their convention in 1909, the president of the union, Mr. T. V. O'Connor, said, "The business depression which was felt throughout the entire country in 1908 gave the dock managers the opportunity they desired and made it almost impossible for our members to resist or go on strike against their so-called 'open shop' policy, as there was practically no work to be done and there were four or five men for every job that offered on the docks" (*Proceedings of Longshoremen*, 1909, p. 21).

factory. Naturally, however, they did not choose in all cases to break off dealings with the unions at the time when the unions were strongest, but seized the opportunity offered by the depression after the panic of 1907 to withdraw from systems of collective bargaining which had proved less satisfactory than had been anticipated.

Even after allowance has been made for the full effect of these factors peculiar to the trade, the time, and the personal element, the history of collective bargaining in the United States during the past fifteen years affords substantial ground for concluding that the success or failure of particular systems of collective bargaining has been determined largely by the character of the system adopted. The systems of national and district collective bargaining operative in the period 1898-1911 fall into two great classes: —

1. Systems under which national or district wage rates are established.

2. Systems under which local wage rates are settled.

The essential difference between the two classes of systems is the difference in the area covered by the wage rates. In systems of the first kind, the rates are fixed by a national or district conference for the whole country or for a district. In systems of the second kind, the rates, altho fixed under a national system, are local rates; and each rate is or may be the subject of a separate decision. Systems of the first kind have proved during the period under consideration more successful and consequently more permanent. An examination of the history of national and district systems of collective bargaining will make this clear.

The systems of the first class established from 1898 to 1911 were those of the Mine Workers, the Potters, the Lake Seamen, the Longshoremen, the Marine

Engineers, the Wall Paper Manufacturers, and the Coopers. Moreover, the systems which were already in operation in 1897, that is, those in the three glass trades, in the iron and steel trade, and in the stove trade, were all of this kind. Some of the systems of this class are less important than they once were. The number of mills represented in the conferences with the Amalgamated Association is much less than in 1897. The once extensive system of conferences between the employers and unions in the longshore and marine trades of the Great Lakes has shrunk until it embraces only a few branches. The extension of the well-established system of conferences between the Stove Founders and the Molders to cover the Stove Mounters and the Metal Polishers did not prove permanent.

It is to be noted, however, that even those systems of this class which have been terminated were effective for a considerable number of years. The conferences between the Longshoremen and the Lake Carriers and the Dock Managers were maintained from 1900 to 1908; those between the Seamen and the Lake Carriers and Lumber Carriers, from 1903 to 1908; those between the Marine Engineers and the Lake Carriers, from 1903 to 1908; those between the Stove Mounters and the Stove Founders, from 1902 to 1907; those between the Metal Polishers and the Stove Founders, from 1902 to 1909. It is also worthy of note that the really important losses were in those systems in which the United States Steel Corporation was an influential factor. The importance of the annual conferences of the Amalgamated Association has diminished since 1897 chiefly because in 1901 and 1909 the union lost control of mills owned by the Steel Corporation. The Pittsburgh Steamship Company, a subsidiary company of the Corporation, is the largest

vessel owner in the Lake Carriers' Association, and the association of Lake Erie Dock Managers is made up largely of the managers of ore docks.

By way of summary, it may be said that systems of the first class, altho some of them have broken down, covered a much larger number of workmen in 1911 than in 1897 and that new systems of this kind, in addition to those in operation in 1897, were established during the period under consideration and so far have maintained themselves in bituminous mining¹ and in the pottery, cooperage, and wall paper trades. The annual conferences in the glass bottle, flint glass, and window glass trades and the conference system of the Molders and the Stove Founders' National Defense Association are unimpaired. The period 1898-1911 marked, therefore, an important advance in the number and extent of such systems of collective bargaining.

The establishment of systems of collective bargaining of the second class, that is, those in which local wage rates are settled under a national system, gives a peculiar interest to the history of collective bargaining since 1897. These systems properly attracted attention from the students of labor problems. It was especially to such attempts to secure industrial peace that Mr. W. F. Willoughby gave attention in his article on "Employers' Associations for Dealing with Labor in the United States," published in this Journal in November, 1905. A more detailed description of systems of this kind forms the central part of Mr. W. F. Hilbert's article on "Employers' Associations in the United States."² These systems of collective

¹ In 1906 there was no interstate agreement in the Central field, but agreements for the states were made separately, and in 1908 and 1910 the Illinois operators did not participate in the conferences.

² Published in *Studies in American Trade Unionism*, edited by Hollander and Barnett, New York, 1908.

bargaining were an essentially new departure. If they had been successfully maintained, they would have offered a promising prospect of extending collective bargaining on a national scale into trades in which the establishment of systems of the older type was impossible on account of the wide variations of wages among localities and the consequent impracticability of setting a wage of district or national area.

The outcome, however, has not justified the expectations of the promoters of these systems. In this class, to name them in the order of their establishment, were the systems of the National Founders' Association, the National Metal Trades Association, the American Newspaper Publishers' Association, the United Typothetae, the National Erectors' Association, the Employing Lithographers, the Fur-Felt Hat Manufacturers. Of these only one survives — that of the American Newspaper Publishers' Association. Moreover, in most of the other cases, the life of the system was very short. The agreement of the National Metal Trades Association with the Machinists and that of the Fur-Felt Hat Manufacturers with the Hatters were terminated in a year; that of the Employing Lithographers with the Lithographers, and that of the Erectors' Association and the Structural Iron Workers, in two years; that of the National Founders' Association with the Iron Molders, in five years. The greatest success in the working of systems of this kind was attained in the printing trade. The agreement of the United Typothetae with the Pressmen was effective from 1902 to 1907, and the "arbitration agreement" of the Newspaper Publishers, first entered into in 1901 with the Printers, the Pressmen, and the Stereotypers, has been regularly renewed and was in 1905 extended to cover the Photo-Engravers.

III

In order to understand the weakness shown by systems of the second class, it is necessary to understand the conditions under which they were established, and which they were intended to meet. The growth of trade unionism in any trade is accompanied almost inevitably by centralization of power in the hands of the national union. This development affects the individual employer or the local association of employers in two ways. In the first place, in any conflict with a local union a local employers' association finds itself confronted with the entire strength of the national union. In the second place, the national union tends, even in the absence of a nationally uniform rate of wages, to build up a series of national working rules relating to the length of the working day, the use of machinery, apprenticeship, etc., which are enforced upon local unions in their dealings with employers. The local associations of employers find, therefore, that the local unions with which they deal have no power, even if they desire, to enter into negotiations on such points. The terms of employment are thus fixed in large part in advance of local negotiations. National associations of employers are formed, therefore, in such trades for two purposes: (1) to bring to bear in local disputes on the side of the employers the strength of a national association, (2) to bring under joint determination the working rules established by the national union.

Obviously a national employers' association may be formed exclusively for one of these two purposes, and the history of collective bargaining in the last fifteen years furnishes instances of such associations. The Fur-Felt Hat Manufacturers, for example, from 1903

to 1907 merely attempted to secure modifications in the working rules of the Hatters. At irregular intervals a committee of the manufacturers met either the executive committee of the union or the convention of the union and urged changes in the working rules. The rate of wages was not considered in these conferences, being settled in each locality by the employers and the unions. In 1907, however, the manufacturers and the union entered into an agreement for the settlement of local rates of wages. On the other hand, the American Newspaper Publishers' Association has confined its activities to devising a means for settling disputes as to local rates and local working rules. It has raised at times the question of the modification of national working rules, but has never made it an issue.

But all of the other employers' associations which have established systems of collective bargaining for settling local rates of wages have regarded the modification of the national union's working rules as important. The working rules which are thus brought into question have ordinarily been established slowly and painfully by the national union before the establishment of the national employers' association. At first enforced in only a part of the union's jurisdiction, they have been extended, frequently at the cost of strikes, until they are effective in all union shops. These rules are ordinarily part of the constitution and by-laws of the national union. They have been enacted in exactly the same way as rules for the internal government of the union, and the officers of the union and the members of the union do not differentiate between working rules which are of concern to employers and rules relating merely to the internal affairs of the union. The representatives of the union

have no more power to alter one than the other. It is this confusion of working rules and internal regulations which frequently makes it impossible for the representatives of the unions and of the employers' associations even to understand each other's point of view.

In 1902, for instance, the New York Typothetae, an association of employing book and job printers, in concluding a local agreement with the New York typographical union agreed to refer to the International Typographical Union and the United Typothetae of America, the national association of book and job printers, for settlement by arbitration "such points as conflict with the International Typographical Union laws." The particular issue involved was a rule of the International Union requiring foremen to be members of the union. When the United Typothetae took up this question with the officers of the Typographical Union, it was met by a refusal to arbitrate the point at issue. The officers of the International Union explained that they had no more power to submit the working rules established by the International Union to arbitration than they had to submit the organic law of the union. This explanation was far from satisfactory to the Typothetae. In its report to the convention of the United Typothetae, the executive council, in commenting on the refusal of the national union to arbitrate, said: —

From this correspondence it will be seen that the International Typographical Union takes the exalted ground that after they have passed a law it is as irrevocable as the laws of the Medes and Persians. While they express at their Birmingham convention and by their communications this year the desire for arbitration, when the first proposition is made to them through one of their local bodies that the question at issue between their members and the employers be arbitrated, they decline to do so on the ground that to arbitrate would be to arbitrate one of their laws, which is impossible of arbitration.

Even when the modification or abrogation of a national working rule, as distinguished from its local enforcement, is the point at issue, it is difficult to make progress under a system of collective bargaining under which only local rates of wages are settled. The national employers' association has ordinarily nothing commensurate to offer in exchange. In the few cases in which some headway has been made, as for example, the agreement between the Metal Trades Association and the Machinists and the agreement between the Typothetae and the Pressmen, these concessions were obtained because it was possible to offer the union the peaceful establishment of a shorter work day. In certain other cases the unions have appraised so highly the introduction of a peaceful method of settling local rates of wages that they have been willing to modify certain of their national working rules.¹ But obviously such occasions are exceptional and recur, if at all, only at considerable intervals. The joint determination of national working rules is not likely to be secured to the desired extent, if the *quid pro quo* which the employers have to offer is of this kind.

In systems of collective bargaining of the first class, on the contrary, the determination of national working rules naturally comes within the power of the national joint conference. The scale of wages is coextensive in application with national working rules,² and in the conferences between the employers and the union all

¹ The Lithographers were forced by a lookout in 1904 to enter into an agreement for the "mutual government" of the trade, under which not only local rates of wages, but national working rules were to be jointly determined.

² In those unions in which district rates of wages are fixed by district conferences, there is exhibited a strong tendency to make the district a governmental unit and to give it autonomy in many matters. The union working rules in such unions are ordinarily district and not national rules and are therefore coextensive in application with the wage scale.

the factors affecting labor cost come under consideration. The working rules desired by the union, which are national in scope, become an element in the bargain struck between employers and union. If the union wishes to enforce such and such rules, the employers must have such and such concessions in wage rates. The working rules are thus clearly brought into direct connection with the rate of wages. In 1899 Mr. D. A. Hayes, president of the Glass Bottle Blowers' Association of America, in his testimony before the Industrial Commission said:—

This book contains the price per gross of every bottle made; also rules, and apprentice regulations, hours, etc. This list is not a result of direct legislation in our conventions. We realize that laws which require the consent of comparatively no outside party, such as taxation, insurance, assessment and things of that kind, can be decided in our conventions. We decide upon them. But questions relating to wages, hours, apprentice regulations do, and our officers are instructed to bring them up in the conferences with the employers, where we decide them after arguments on both sides. They are then accepted and approved; hence this book is not the final law of our organization or convention. It is a result of a joint conference with our employers.¹

The plan of bringing working rules under joint determination is common in greater or less degree to all systems of collective bargaining of the first class.

The difference between the two classes of systems of collective bargaining in this respect may be illustrated from the history of collective bargaining in the Iron Molders' Union. In 1891 that union entered into an agreement with the Stove Founders' Defense Association, which at first merely provided for the settlement of local disputes by conference. But in 1892 it was provided that "the general rate of molders' wages should be established for each year without change." Since that time clause after clause has been

¹ Report of the Industrial Commission, Washington, 1900, vol. vii, p. 102.

added to the agreement, setting forth working rules agreed upon in conference at the time of settling wages for the year. The employers have not always secured the working rules which they desired, but the rules have been powerfully affected by the conferences.

In 1899 the National Founders' Association and the Iron Molders' Union entered into an agreement for the settlement of local disputes. The initial agreement was similar to the initial agreement between the Stove Founders and the union, but in the case of the National Founders' Association the agreement was not extended to include the periodical setting of a national rate of wages. Until its termination the agreement provided merely a mechanism for settling local disputes. In a succession of conferences, conducted by able and experienced employers and union officials, the records of which form one of the most important documents in the history of collective bargaining in this country, the more important national working rules of the union were discussed. It was found impossible, however, to make any progress in reaching an agreement as to working rules. In 1904 the agreement was annulled and the National Founders' Association became and remains a hostile employers' association. The probability of the maintenance of the system would undoubtedly have been much greater, if it had been found possible to entrust to annual joint conferences the setting of a national wage rate.

IV

If the foregoing analysis of the history of collective bargaining in the last fifteen years is correct, the general proposition is established that the success of a national or district system of collective bargaining is far more probable when the scale of wages is a national or

district scale, since only then is it likely that working rules will become subject to joint determination. Unless that is accomplished, employers ordinarily feel that the maintenance of the system is hardly worth while. It follows that the establishment of successful systems of bargaining will depend chiefly upon the extent to which it seems feasible and desirable to establish national or district wage rates. A national wage scale need not, of course, be uniform for the entire country or even for a district. Differentials from a central rate may be recognized as is done in the agreements in the bituminous coal fields. But the rates must be more uniform through the country than is the case at present in many trades. The establishment of nationally uniform rates is usually more practicable where the union is dealing with homogeneous groups of employers, that is, groups in which the employers employ the same classes of workmen and have fairly well standardized establishments. The success of the Stove Founders' system, as has been indicated, was due to the possibility of establishing a national rate; and that possibility was due to the fact that the employers' association with which the union dealt was made up entirely of stove founders. The National Founders' Association, on the contrary, comprises a number of distinct groups of founders, employing different classes of molders. It seems probable that some of these groups, if they had dealt separately with the union, might have found it feasible to establish a national rate of wages for the molders in their employ. In all the systems of collective bargaining of the first kind, the groups of employers with which the unions deal are relatively homogeneous.¹

¹ The American Newspaper Publishers' Association is a homogeneous group of employers; in few industries do the establishments conform so closely to a single type

In the glass bottle trade, for example, the union signs three separate scales with different groups of employers. The Flint Glass Workers sign eight or ten separate scales.

For the building up of systems of effective bargaining of the first class, two influences are at work. The first is the formation of homogeneous, even if small, employers' associations, in which the setting of a national wage scale is possible. Of the new systems of collective bargaining of the first class established within the past fifteen years, it is to be noted that the Potters deal with two separate groups of employers. The Machine Employing Coopers and the Wall Paper Manufacturers are small and homogeneous organizations. It is entirely possible, of course, for several such bargaining groups in a trade to be united for certain purposes in a single employers' association. The three groups of manufacturers in the glass bottle trade, for instance, are parts of the National Association of Glass Bottle Manufacturers. The second influence making for the establishment of systems of collective bargaining of the first class is the tendency on the part of a considerable number of unions to make their wage rates uniform. Within very recent years, for instance, the railway brotherhoods have been striving to make sectionally uniform their rates, which have hitherto varied considerably from railroad to railroad.¹ Whatever disadvantages may be connected with this process, it may be confidently predicted that if it is carried to

as in newspaper publishing. There appears to be no insuperable difficulty in the way of the Publishers' setting in annual conferences with the unions in the printing trades national rates of wages, differentiated according to the size of the place and according to section of country, but pivoting on a central rate. The advantage to the Publishers and to the unions would be that under such a system the working rules would probably come under joint determination.

¹ For an account of this movement, see an article in the October number of this Journal by Mr. William J. Cunningham, entitled "Standardizing the Wages of Railroad Trainmen."

successful conclusion one effect will be that working rules which have heretofore been determined practically by the national unions will tend to become more and more subject to joint determination.

The successful working of systems of collective bargaining of the second class is entirely practicable where an employers' association is willing to allow the national union to determine independently national working rules. The American Newspaper Publishers' Association, as has been noted above, has adopted this policy. The newspaper publishing business is one in which the suspension of work is extremely hurtful. It is also an industry in which the unions are very strong. The Publishers, under their arbitration agreements with the unions, receive a guarantee that disputes will not result in strikes. Wages and hours are settled by joint conferences or, if these fail, by arbitration. But the Publishers have expressly agreed that national working rules shall not be arbitrated. It is possible that other groups of employers are so concerned in avoiding the suspension of work that they may be willing to waive the joint determination of working rules. But a complete system of collective bargaining, including the joint determination of all working rules, appears feasible only where a national or district conference sets a national or district wage rate.

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THE POWDER TRUST, 1872-1912

SUMMARY

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AMONG the numerous combinations in restraint of trade that have been attacked in recent years by the government under the Sherman Act, the so-called "Powder Trust" is probably the most interesting; and this for several reasons. In the first place the Powder Trust has had perhaps the longest continuous existence of any combination, the Standard Oil Company alone excepted. Secondly, the combination has demonstrated that, contrary to the general experience, it is possible for a pool to maintain itself through a long period of years without either breaking

down or to any great extent losing its effectiveness. Finally, peculiar interest attaches to the Powder Trust in its later history because of the unique scheme employed by E. I. du Pont de Nemours and Company, to be considered in the latter part of this article, for dissolving subsidiaries.

The history of the Powder Trust falls naturally into three periods, as follows:—

- I. From April 23, 1872, to July 2, 1890, the date of the passage of the Sherman Act.
- II. From July 2, 1890, to March, 1902, when Thomas, Pierre, and Alfred du Pont incorporated the E. I. du Pont de Nemours and Company, the Delaware corporation of 1902.
- III. From the incorporation of March, 1902, to the present day.

PERIOD I

At 10 o'clock on April 23, 1872, certain persons representing six gunpowder manufacturers¹ held a meeting in New York City at the office of F. L. Kneeland, 70 Wall Street. A seventh concern, tho not represented, expressed in a letter its entire agreement with the purposes and objects of the assemblage.² The secretary of the meeting, Mr. A. E. Douglass, representing the Hazard Powder Company, read a proposed scheme of association, which was amended in some respects to conform to the opinions

¹ The concerns represented were as follows: E. I. du Pont de Nemours and Co., the Lefin and Rand Powder Co., the Oriental Powder Mills, the American Powder Co., Miami Powder Co., and the Hazard Powder Co. All citations are from the Testimony, Exhibits, Briefs, and documents in the suit of the United States of America v. E. I. du Pont de Nemours and Co. et. al. U. S. C. C., for the District of Delaware, No. 280. In Equity.

² This seventh concern was the Austin Powder Company, a corporation of Ohio.

of those present and was then ordered to be printed and distributed for further consideration and action to the participating firms and companies. It was resolved that a committee of four should be appointed by the chairman who should arrange a price schedule for the prominent markets of the United States and report at the next meeting.¹

On April 29th, at an adjourned meeting, the committee of four reported back a price schedule which was unanimously adopted as were also, substantially unchanged, the articles drafted at the prior session. The name of the pool was to be the "Gunpowder Trade Association of the United States." Its declared purpose was to ensure "an equitable adjustment of prices and terms for sales of powder throughout the United States."² The seven concerns composed its original membership, it was provided that any manufacturer might signify in writing to the President his desire to become a member and might be admitted to the combination. Representation was based largely upon the size of the concern. E. I. du Pont de Nemours and Company, and the Hazard and the Laffin and Rand Powder Companies were allotted ten votes each. The Oriental Powder Mills received six votes and each of the other concerns four votes. The Association was to fix and regulate the minimum prices for powder, for which purpose, presumably, it was provided that the association should meet quarterly.

A "Council" of five persons was to be elected by the associates. It was to meet weekly or at the call of the chairman, and three members were to constitute

¹ Confidential Minutes of the Meeting of the Manufacturers of Gunpowder, April 23, 1872. Gov't Exhibit No. 96, Pet. Rec. Exhibits, vol. i, pp. 471-472.

² Articles of Association, Gov't Exhibit No. 96-b, Pet. Rec. Exhibits, vol. i, pp. 476-477.

a quorum. To it all questions of price discrepancies and discriminations were to be referred, as well as all complaints of infractions of the agreement. The "Council" was to give a final adjudication upon these questions, by a majority vote, subject to the right of an aggrieved member to appeal to the next quarterly meeting of the association.¹ The object of the Council, as alleged by the government in its Brief was solely to secure the maintenance of the price schedules established by the Association.²

At the time of the formation of the Association there was in existence and doing business, in the western part of the United States, a company known as the California Powder Works. In 1875 the combination began a campaign of under-selling for the purpose of eliminating that concern from the field. The outcome of the contest was the sale by the California Powder Works of 43½ per cent of its stock to E. I. du Pont de Nemours and Company.³ In the same year an agreement was entered into between the Association and the western concern. Rules were adopted by which the prices of powder in the states and territories of Utah, Wyoming, Montana, Colorado, and New Mexico (territory known as the "Neutral Belt") were to be named by the "Representative Agents" of the Association, but not to be less than certain minimum prices fixed by that Association. Members engaged not to sell below prices and terms thus established, upon penalty of one dollar per keg for such sales, payable in gold.⁴ In 1880 this agreement was renewed for a term of five years. The latter compact provided that the Association should neither

¹ *Op. cit.*, Articles of Association, p. 478.

² Brief for the United States, vol. 2, p. 8.

³ Cf. Amended Pet., Pleadings, pp. 18-19.

⁴ Gov't Exhibit No. 96-t Pet. Rec. Exhibits, vol. i, pp. 521 ff.

sell in nor ship into the states of California, Oregon, and Nevada and the territories of Arizona, Idaho, Washington, and Alaska, British possessions or colonies west of the Rockies.¹ The Neutral Belt was preserved subject to the same kind of an agreement in regard to prices as was utilized in the arrangement of 1875. The California Powder Works upon its part agreed to refrain from any shipments into the territory east of the Neutral Belt, which was to belong exclusively to the Association.²

In May, 1876, an agreement was secured from the Sycamore Powder Company to maintain the rate schedules of the Association.³ Presumably this was not a difficult task, for as early as 1873 the du Pont interests had purchased 500 shares in this concern.⁴ About the same time another agreement was made, this time with the Lake Superior Powder Company, whereby that concern agreed to confine its sales to a certain definite territory. The Association had earlier agreed that such of its members as were not at that time in enjoyment of the Lake Superior trade would not attempt to enter that district.⁵

Prior to this, in 1876, the articles of association were so amended that, in case of an infraction of

¹ Except that du Pont de Nemours, the Hasard, and Laffin and Rand Companies were given rights to make shipments up to certain amounts. Gov't Exhibit No. 4, Pet. Rec. Exhibits, vol. i, p. 45.

² Ibid., Agreement, pp. 49 ff.

³ Gov't Exhibit No. 96-s, Pet. Rec. Exhibits, vol. i, p. 534.

⁴ Testimony of E. C. Lewis, Def. Rec. Testimony, vol. i, pp. 403-409. The remainder of the stock was purchased by the same parties a few years later.

⁵ Compendium of Rules, June 1, 1881. Gov't Exhibit No. 97, Pet. Rec. Exhibits, vol. ii, Secs. 37-38, p. 834. About 1877 or 1878 a majority of the stock of the Lake Superior Powder Company was acquired for cash by the du Ponts and other interests. Cf. Testimony of J. G. Reynolds, Def. Rec. vol. ii, pp. 589-590. Amended Pet. of Gov't asserts that both of these concerns were forced into the agreements by ruinous competition. Cf. Amended Pet. Pleadings, p. 23. Assertions are rebutted in defendant's testimony. Def. Rec. Testimony of E. C. Lewis, vol. i, pp. 412-413, testimony of J. G. Reynolds, *ibid.*, vol. ii, p. 590.

prices, charges thereof should be preferred by a written notice twenty days previous to the quarterly meeting. The notice was required to state definitely the place at which the goods in which the cut was claimed to have been made were sold and delivered. At the quarterly meeting the associates, each having one vote, would hear the evidence and determine its value. Their decision was to be final and the penalty was to be paid in cash to the Association. This, of course, eliminated the necessity of the council of five members, originally provided for in the agreement of 1872, and that paragraph was in consequence repealed on August 2, 1876.¹ The various "triers" appointed under the new provision, to secure the maintenance of prices soon found plenty of work for them to perform. In the first place three new independent companies entered the gunpowder trade between 1878 and 1881 in competition with the Association. The result was a decided and general demoralization of prices and the conditions of the trade.² These circumstances subjected the Association to the most severe test of its career. Between 1881 and 1883 the minutes show that 230 cases of violations of price agreements were tried by the Association.³ There is evidence to prove that it was a practical impossibility to maintain the schedule of prices, and that each member looked out for his own interest.

There is also abundant testimony to show that a part of this demoralization in prices was caused by a campaign of under-selling inaugurated against the above mentioned independent companies in the period

¹ Amended Articles of Ass'n, Gov't Exhibit No. 96-cc. Pet. Rec. vol. i, pp. 558-561. For repeal of the section regarding the Council see Gov't Exhibit No. 96-bb. Pet. Rec. Exhibits, vol. i, pp. 546-547.

² Cf. Ans. of the King Powder Co., Pleadings, p. 410. Also Testimony of Gerahon M. Peters, Def. Rec. Testimony, vol. ii, pp. 689-692.

³ Cf. Brief, vol. 2, p. 14.

1880-85. For example, in the case of the King's Great Western Powder Company, the Hazard Powder Company gave instructions to its agents to cut the price with the guarantee to each customer that it should be ten cents lower than any price that the King's Company would make them. Prices on rifle powder in Cincinnati, where the King's Company was located, went down to \$2.25 per keg, altho in the New England and other states it was \$6.25. Blasting powder declined in price from \$2.75 or \$2.85 to 80 cents per keg in the same locality.¹ Substantially the same methods were employed against both the Ohio Powder Company and the Marcellus Powder Company,² the other two of the independents, with the result that all three were forced to yield to the combination,³ and became parties to a new combination on August 23, 1886, together with the concerns already in the Association.

The purpose of the agreement of 1886 was: "regulating in a convenient and desirable manner the business of the parties . . . including the regulation of the prices at which such powder shall be sold; for the purpose of avoiding unnecessary loss in the sale and disposition of such powder by ill regulated or unauthorized competition and under-bidding by the agents of the parties hereto". . . . The terms of the agreement provided that the nine parties to the

¹ Testimony of R. S. Waddell, Brief for the United States, vol. 2, pp. 16-30. It is only fair to say that it was endeavored to rebut the testimony of Waddell in regard to the methods of competition employed against these independent companies, and to so far as possible, discredit it. Cf. Testimony of Gershon M. Peters, Def. Rec. Testimony, vol. ii, pp. 690-691, 699, 729-731.

² Cf. Amended Pet. in Pleadings, pp. 28-29. Testimony R. S. Waddell, Brief vol. ii, pp. 22-23.

³ In 1886, the stock of the Marcellus Company was sold to du Pont de Nemours, the Hazard, and Lafin and Rand Companies and the Oriental Powder Mills. In the same year the Ohio Powder Company disposed of 38 per cent of its stock to the first three of these companies, Cf. Amended Pet. Pleadings, p. 32.

combination, known as the "Nine Companies,"¹ outside of the Laffin and Rand, Hazard, and du Pont de Nemours Companies, known as the "Three Companies," should be allotted arbitrary quotas of so many thousand kegs of powder per year. Whenever the "Three Companies" should show an increase in average yearly sales of powder, it was provided that the total allotments to the "Nine Companies" should be correspondingly increased.² In case the "Nine Companies" sold more than their total allotment, they agreed to take from the "Three Companies" sufficient powder to adjust the liability at a price of three-quarters of the established sales prices, in the case of sporting, and five-sixths in the case of blasting powder.³ Thus the "Three Companies" were left free to sell as much powder as they could, it being merely provided that when their sales should increase beyond the average for the years 1882, 1883, and 1884 the total allotment of the "Nine Companies" should be increased. On the other hand, if the "Nine Companies" sold more than their allotment, including such increases in percentages as might accrue to them through increases in sales by the "Three Companies" during the year, they were obliged to adjust this by purchase from the said "Three Companies."

The agreement established a "Board of Arbitration" consisting of a chairman and two other members who were to be designated by the Association. The Board was to settle all the questions in dispute and their decisions thereon were to be final.⁴ The Schagti-

¹ Oriental Powder Mills, Miami Powder Company, American Powder Mills, Austin Powder Co., King's Great Western Powder Co., Lake Superior Powder Co., Sycamore Powder Mfg. Co., Ohio Powder Co., and Marcellus Powder Co.

² Cf. Agreement. Gov't Exhibit No. 7, Pet. Rec. Exhibits, vol. i, p. 114.

³ Ibid., pp. 117-119.

⁴ Ibid., pp. 119-120.

coke Powder Company, a majority of whose stock was held by Laffin and Rand, was to be regarded in the matter of sales as a part of the latter company. Laffin and Rand on their part guaranteed that the Schaghticoke Company would comply with all the provisions of the agreement.¹ Within six months of the formation of this new combination agreement the prices that had so declined during the early eighties had recovered to practically their former figures.² The trade of the California Powder Works was, as before, regulated by a supplementary agreement.³ Four other supplementary agreements were also entered into in the two next succeeding years, at New Orleans, Chattanooga, Louisville, and Cincinnati respectively, looking to the strict enforcement of the regulations and prices of the Association.⁴

As provided by its own terms the agreement of 1886 lapsed or was to lapse on December 31, 1889. But before that date the same twelve companies, parties to the 1886 agreement, entered into the so-called "Fundamental Agreement" of 1889. The objects of the third compact as stated were identical with those of the second one. In operation also the new

¹ *Ibid.*, p. 121.

² Testimony of Gerahon M. Peters. *Def. Rec. Testimony*, vol. ii, pp. 697-698. Cf. *Testimony of R. S. Waddell, Brief*, vol. 2, pp. 28-29.

³ The agreements were slightly altered. Certain of the members of the combination were allowed to ship into Pacific Coast Territory a limited amount of certain high grade goods. But none were allowed to ship in goods of the lower grade. Such sales, however, as were made in this territory were to be at prices named by the California concern and were also to be in accordance with its rules. In return the California Powder Works was permitted to make sales, with certain exceptions, east of the "neutral belt," territory formerly exclusively reserved to the combination. An interesting feature of these agreements is the designation of the parties thereto not by their names, but by certain letters of the alphabet. Cf. *Abstracts referring to Pac. Coast Sales. Gov't Exhibits Nos. 114 and 115, Pet. Rec. Exhibits, vol. ii, pp. 996-1001.*

⁴ The text of the agreements at New Orleans, Louisville, and Cincinnati may be found in *Pet. Rec. Exhibits, Nos. 8-10, vol. i, pp. 123-132.* Reference is made to the Chattanooga Agreement in a letter of the Hasard Powder Company to its agent at Chattanooga. *Gov't Exhibit No. 46, Ibid.*, p. 254.

pool adopted in general the same methods previously in vogue under that agreement. The United States was divided into seven districts and, as before, trade on the Pacific Coast was to be regulated by a supplementary arrangement with the California Powder Works.¹ A "Board of Trade" of five members succeeded the "Board of Arbitration" of the preceding agreement, with power to fix and alter prices and to adjudicate grievances. The total volume of sales was to be regarded as the aggregate trade for the year and was to be divided in direct proportion to the yearly allotment of each one of the parties.² The Board of Trade was directed to make computations of sales in excess of or deficiencies below the allotments thus provided for and to furnish each party with a written accounting in full detail. Within thirty days parties liable were required to pay cash into the treasury for excesses. This money was then to be distributed among the parties entitled thereto as shown by the accounting.³

One paragraph of the Fundamental Agreement provided that any one who was injured by an overt act of the Board of Trade, "as for instance the reduction of a price at a place, in treatment of a local disturbance of trade," should be compensated for the loss sustained by the payment of money.⁴ The new agreement embraced companies that controlled ninety-five per cent of the output of rifle powder and ninety per cent of the output of the blasting powder of the United

¹ Fundamental Agreement, Gov't Exhibit No. 6, Pet. Rec. Exhibits, vol. i, pp. 94-109. Cf. pp. 100-101.

² Hazard, Lafin and Rand, and du Pont de Nemours Companies to be regarded as one party.

³ Fundamental Agreement, Gov't Exhibit No. 6, Pet. Rec. Exhibits, vol. i, pp. 101-102.

⁴ Op. cit. Fundamental Agreement, p. 107.

States.¹ The agreement was to go into effect in January, 1890, and was to continue in force to June 30, 1895, and indefinitely from year to year thereafter, unless one or more of the parties should give notice of intent to withdraw from it.² As a supplement to the Fundamental Agreement an "Auxiliary Agreement" was entered into on the 19th of December, 1889. This made specific provision for the work of the Board of Trade, and laid down numerous rules in regard to deliveries, agents, magazines, etc.³

With the conclusion of the Fundamental Agreement of 1889, the first period of the history of the powder combination closes. It may be styled the period of inception. In it both the gunpowder trade and the dynamite trade went through the first stage of combination. The gunpowder trade in this period has been combined effectively; but the dynamite trade (as will appear presently) was not fully organized until later. The full consolidation of the dynamite trade belongs in the second period, as well as does the story of the establishment of closer and more harmonious relations among the members of the combination.

PERIOD II

The passage of the Sherman Act in 1890 was apparently unknown to the members of the combination. This was perhaps not unnatural, since at that time, or at least shortly after, the associates had much more vital matters to attend to. These related chiefly to the suppression of competition. Between 1890 and 1894, three new concerns entered the field of

¹ Testimony of R. S. Waddell, Brief, vol. 2, p. 37.

² Op. cit. Fundamental Agreement, p. 108.

³ Auxiliary Agreement, Gov't Exhibit No. 100, Pet. Rec. Exhibits, vol. ii, pp. 906-911.

powder manufacture, *i. e.*, Chattanooga Powder Company in 1890, Phoenix Powder Manufacturing Company in 1891, and the Southern Powder Company in 1894.¹ The Chattanooga Company had scarcely begun business before war against it was commenced by the combination. Mr. F. J. Waddell was instructed by Eugene du Pont "to put the Chattanooga Powder Company out of business by selling at lower prices."² Acting under these orders that gentleman went into southern territory where he sold powder at cost, or below in some cases. By paying the railroad agent at Ooltewah, Tennessee, from \$15 to \$18 per month, Waddell was furnished with a weekly statement of the powder shipments made by the Chattanooga Company together with the name of the consignee, the number of kegs, and the destination;³ a method of competition that reminds one strongly of the methods of espionage employed by the Standard Oil Company upon various occasions. Finally in the latter part of 1895 the Chattanooga concern sold out.⁴ Scarcely less vicious in character was the campaign waged against the Phoenix and the Southern Companies, both of which capitulated to the superior strength of the combination,⁵ and passed under its control.⁶

¹ Cf. Amended Petition, Pleadings, pp. 37-39. Besides these concerns the Equitable Powder Company was organized in 1892. At the time of its organization du Pont de Nemours acquired 41 per cent of its capital stock.

² Testimony of F. J. Waddell. Brief, vol. 2, p. 60.

³ *Ibid.*, p. 60 ff.

⁴ Laffin and Rand and the du Pont de Nemours Company acquired 55.41 per cent of its stock. Cf. Amended Pet. Pleadings, pp. 40-41.

⁵ Cf. Testimony of F. J. Waddell, Brief, vol. 2, pp. 67-75.

⁶ Laffin and Rand, du Pont de Nemours, and the Hazard Company acquired all or a very large portion of the stock of the Southern Powder Company and later dismantled its mills. Cf. Amended Pet., Pleadings, p. 40. Laffin and Rand and the Hazard Company together with the American Powder Mills and the Miami and Austin Companies acquired the capital stock of the Phoenix Powder Mfg. Co. Cf. Gov't Exhibit No. 136, Pet. Rec. Exhibits, vol. iii, p. 1694; also answers of various companies in Pleadings, pp. 192, 244, and 426.

About July 1, 1896, the combination held a "round up" as one somewhat facetious witness styled it. To put it in other words, the outsiders were whipped.¹

Prior to the close of this competitive struggle, on May 8, 1895, the combination at its quarterly meeting appointed a committee to formulate a revision of the Fundamental Agreement. This action was occasioned by the notification of the president of the King Powder Company² that the stockholders did not wish to renew their arrangements with the combination.³ The terms of the Revised Agreement were substantially identical with those of the older Fundamental Agreement, merely eliminating one or two sections including the article in regard to compensation for injuries suffered through overt acts of the Board of Trade⁴ and continuing the great majority of the rules embodied in the early document.⁵

In 1896 the acquisition of the new companies, the Chattanooga, Phoenix, and Southern, gave rise to a new agreement known as the "Understanding."⁶

¹ Testimony of F. J. Waddell, Brief, vol. 2, p. 73.

² Formerly King's Great Western Powder Company. The name was changed in 1878.

³ Minutes of Manufacturers Meeting, Gov't Exhibit No. 104, Pet. Rec. Exhibits, vol. ii, p. 953.

⁴ *Supra*, p. 454, note 3.

⁵ Revised Agreement, Gov't Exhibit No. 106, Pet. Rec. Exhibits, vol. ii, pp. 958-961.

⁶ Fundamental Agreement of 1896, Gov't Exhibit No. 111, Pet. Rec. Exhibits, vol. ii, pp. 973-989. This Agreement is called "the pool agreement" in the Amended Petition. In the Amended Petition an agreement of 1891 is referred to known as the President's Agreement. This provided for a Board of Trade composed of a representative from each of the concerns in the combination. No mention is made of this, however, in the Brief for the United States, which document does show, however, that in 1893 a Board of Trade of only five members was in operation. (Brief for the United States, vol. 2, p. 54.) Therefore, if such a representative board was provided for in 1891, it must have gone out of existence very shortly. Moreover, the index to the Brief gives the heading of President's Agreement referring to vol. ii, p. 53, of that document where the only agreement mentioned is the "Revised Agreement" of 1895. The Amended Petition does not speak of any agreement of 1895. Knowledge of the President's Agreement is specifically denied by the King Powder Company, and Laffin and Rand in the answers of these defendants to the suit of the United States. Cf. Pleadings, pp. 238-239 and 416.

This document practically continued the Fundamental Agreement of 1889. There was to be but one copy of the Understanding, which was to have no title, and this single copy was to remain in the custody of the Advisory Committee. A syllabus or abstract of the document was, however, to be prepared and given to each member of the combination.¹ Letters of the alphabet were used to designate the various parties to the agreement. A key ² was also adopted indicating the parties represented by the alphabetical designation. A comparison of the abstract of the Understanding with the Fundamental Agreement reveals but slight differences in the purport of the two documents. Sales in the sixth and seventh districts, *i. e.*, the Pacific Slope District, and the Neutral Belt, were to be regulated by the agreements of 1886,³ and the Advisory Committee (instead of the Board of Trade) of five members was to regulate prices and other matters as before.⁴ Including the Schaghticoke Company, the new combination embraced seventeen concerns outside of the California Powder Works.⁵

Almost immediately after the combination of 1896 was formed, prices of powder were advanced by the combination.⁶ Between 1896 and 1904, the period during which the agreement of 1896 was operative,⁷ rights were given to some of the members of the com-

¹ Minutes, Gov't Exhibit No. 110, Pet. Rec. Exhibits, vol. ii, p. 971.

² For a copy of this "Key" cf. Pet. Rec. Exhibits, vol. ii, p. 989-990.

³ *Supra*, p. 453, note 2.

⁴ Cf. Agreement of 1896, Gov't Exhibit No. 111, Pet. Rec. Exhibits, vol. ii, p. 973-989, or Abstract (of the same), Gov't Exhibit No. 113, *ibid.*, p. 992-996.

⁵ To the original twelve companies were added the Chattanooga and Southern Powder Companies, the Phoenix and Equitable Powder Mfg. Companies and the Schaghticoke Company. The last two, it will be recalled, were strongly affiliated with the du Pont and Lafin and Rand Companies.

Testimony of Jonathan A. Haskell, Def. Rec. Testimony, vol. ii, p. 1117.

⁷ and Rand, Pleadings, pp. 247-248.

bination to contract with certain particular customers, at specified prices set by the Association, below the regular schedule prices. The awarding of these contracts was in the hands of the Advisory Committee, under certain regulations adopted by the parties to the combination.¹

It will be recalled that immediately after the adoption of the Fundamental Agreement of 1889 the prices of powder were raised and that in the early nineties the Association was obliged to meet severe competition on the part of outsiders. Now the rise in prices that followed the agreement of 1896 was accompanied by exactly the same phenomena. Between 1896 and 1902 four new independents were organized outside of the combination; the Birmingham, Indiana, Northwestern, and Fairmount Powder Companies. In the case of the Birmingham Company the combination secured the freight rates out of Birmingham on all the railroads, and set a price on powder of 70 cents per keg, f. o. b. Birmingham, and then added the freight from there to points that ought to be reached so that powder would not net more than 70 cents a keg at Birmingham,² and awaited results. As the relator of this method of arrangement laconically remarked: "It was, perhaps, a year until they died."³

The Indiana Powder Company was a somewhat different form of company than the ordinary. It was promoted, if that term be allowed, by a George L. Rood, formerly a salesman in the employment of the Hazard Powder Company,⁴ who induced several mine owners and operators of West Virginia, Ohio,

¹ Minutes, Gov't Exhibit No. 118-i, Pet. Rec. Exhibits, vol. ii, pp. 1071-1072.

² Testimony of F. J. Waddell, Brief, vol. 2, pp. 129-130.

³ Ibid., p. 130.

⁴ Testimony of George L. Rood, Def. Rec. Testimony, vol. i, pp. 420-423.

Kentucky, and Indiana to go in with him and organize the company. The mine owners and operators were in the habit of selling powder to their miners, and, being interested in the new concern, would buy their powder from it. The work of construction upon the mills just outside of Terre Haute had not much more than begun before F. J. Waddell and Mr. Colvin of the Hazard Powder Company appeared upon the scene of action. Their object was to determine if some agreement could not be arrived at between the Hazard Company and the new concern. The proposition offered was that the Indiana Company increase their capital stock and sell the Hazard Company 51 per cent of it at par.¹ The offer was, however, refused; Rood completed his works and began to get out his powder.

In the meantime Eugene du Pont and Mr. F. W. Olin (the latter of the Equitable) had been appointed a committee to attend to the Indiana's competition. The Great Northern Supply Company was organized by the combination and began business in the vicinity of Terre Haute, as near as possible to the mines of the coal operators who were stockholders in the Indiana Powder Company. The Supply Company put out a line of wagons retailing powder at \$1.25 per keg, while the price agreed upon by the miners and operators was \$1.75 per keg. The Great Northern Supply Company obtained its powder from the overlying companies, chiefly from Lafin and Rand, the Hazard, du Pont de Nemours, and American.² The contest lasted from about 1899 to the latter part of 1901 or

¹ Testimony of F. J. Waddell, Brief, vol. 2, p. 137 and of George L. Rood, Def. Rec. Testimony, vol. i, pp. 425-427.

² Testimony of H. M. Barksdale, Def. Rec. Testimony, vol. ii, pp. 663-666 and F. J. Waddell, Brief, vol. 2, pp. 138-140; George L. Rood, Def. Rec. Testimony, vol. i, pp. 428-429.

early 1902. Rood finally made a proposition to the combination and it was accepted. A majority of the Indiana's stock was sold out to Laffin and Rand and E. I. du Pont de Nemours and Company at a rate of five in cash to one in stock. Rood at the same time agreed not to embark in the powder business for a period of twenty years.¹

The North Western Powder Company had been subjected to the same competition as the Indiana through the fact that it was located only about thirty-five miles from the Indiana Company's plant,² and was operating in practically the same manner as the latter concern.³ Rood also arranged for the sale of the stock of this concern to certain members of the combination,⁴ at about the same time as he disposed of the Indiana Powder Company. The fourth company of those entering upon the manufacture of powder between 1896 and 1902, the Fairmount Company, was a small concern in West Virginia and sold out very quickly.⁵ As to the Great Northern Supply Company, that concern was liquidated and made an assignment for the benefit of its creditors, the principal ones being E. I. du Pont de Nemours and Company, and Laffin and Rand.⁶

The control and power of the powder combination was further strengthened between 1896 and 1902 by a series of agreements entered into with various individuals and concerns. An agreement with A. S. Speece and Company provided that in consideration

¹ Testimony of George L. Rood, *Def. Rec. Testimony*, vol. i, pp. 430-431, 439.

² *Op. cit.* *Def. Rec. Testimony*, vol. i, p. 431.

³ *Brief*, vol. ii, p. 152.

⁴ *Ibid.*, note 1, above.

⁵ A majority of the stock of the Fairmount Company was purchased by the du Pont interests. Cf. *Answer of the Fairmount Powder Company, Pleadings*, p. 336.

⁶ Testimony of H. M. Barksdale, *Def. Rec. Testimony*, vol. ii, p. 666.

of \$800 per annum they and their representative, D. M. Kirk, would engage to keep out of the powder business. An agreement of like nature was concluded on May 15, 1896, with F. L. Kellogg. Some sort of a compact was also entered into between the Belmont Powder Works, party of the first part, and E. I. du Pont de Nemours and Laffin and Rand, party of the second part; while A. S. Kirk and Company had agreements, the precise character of which is not revealed by the documents.¹ Further, on January 29, 1901, a contract was made whereby the King Powder Company agreed to sell its entire output of powder, except such as might be required by the Peters Cartridge Company with which it was intimately associated, to E. I. du Pont de Nemours and Company, and Laffin and Rand for a period of twenty-five years from the first day of April, 1901.² With the purchase of the majority or entire control of the four powder companies that had entered the field between 1896 and 1902, the Birmingham, Indiana, Fairmount, and Northwestern, and the completion of the agreements just mentioned, competition in the manufacture of blasting and sporting powders seems to have been nearly eliminated throughout the United States except in the state of Pennsylvania.³

It now becomes necessary to go back somewhat in order to examine the process by which the Powder Trust secured control of the dynamite trade. Dynamite, a high explosive, was first manufactured on the

¹ Brief, vol. 2, pp. 155-158.

² Testimony of Gershon M. Peters, Def. Rec. Testimony, vol. ii, pp. 706-710. Cf. also Gov't Exhibit No. 333, Pet. Rec. Exhibits, vol. v, pp. 2392-2398.

³ This is the allegation of the Government in its Brief where it is stated that the same is admitted by the answer of E. I. du Pont de Nemours in the Pleadings, Cf. Brief, vol. 2, p. 161 and Pleadings, pp. 148-151. The writer feels that the admission in the terms in which it is couched is so qualified as to preclude its being regarded as an absolute affirmation of the charge.

Pacific Coast about the year 1869. It was used to a considerable extent in the western states as a substitute for blasting powder before it made much progress in the East.¹ Before long, however, it became evident that dynamite was a strong competitor of blasting powder. It became not merely desirable but absolutely necessary that the powder combination should control it, blasting powder being one of its principal articles of manufacture.

About 1879 or 1880 the Repauno Chemical Company had been formed by the du Pont and Laffin and Rand interests for the purpose of manufacturing dynamite. At that time there were in the United States several concerns engaged in the manufacture of that explosive. On the Pacific Coast were the California Powder Works and the Giant Powder Company; in the East were the Aetna Powder Company and the Lake Superior Powder Company, while a branch of the California Powder Works was also operating in that section. A branch of the Giant Powder Company, known as the Atlantic Dynamite Company, was doing business in the state of New Jersey. At the time of the organization of the Repauno Chemical Company another concern, the Hercules Powder Company, was also organized by the same interests, for the purpose of acquiring the eastern plant of the California Powder Works. Coincidentally the same parties also purchased one-third of the stock of the Giant Powder Company's subsidiary, the Atlantic Dynamite Company.²

Up to 1895 the stockholders of the three last mentioned concerns remained practically the same, that is to say, the du Pont and Laffin and Rand interests controlled both the Hercules Powder Company and the

¹ Brief, vol. 2, p. 166.

² Testimony of H. M. Barksdale, Def. Rec. Testimony, vol. ii, pp. 598-601.

Repauno Chemical Company, holding at the same time a one-third interest in the Atlantic Dynamite Company. It so happened that the business of the Atlantic Company in the East was conducted by two agents, between whom, from time to time, a considerable amount of friction arose. At length the California owners found themselves in a position where they must dismiss one of these men and continue the other, or else secure some one else to manage their business for them in the East.¹ The upshot of this situation was the organization of the Eastern Dynamite Company under New Jersey laws with an authorized capital stock of \$2,000,000. Of this \$1,400,000² was issued in exchange for the capital stocks of the Repauno Chemical Company and Hercules Powder Company. The remaining \$600,000³ was exchanged for the assets of the Atlantic Dynamite Company. Now as du Pont de Nemours and Company and Laffin and Rand had owned together nine-twelfths of the stocks of the Repauno and Hercules Companies, they received nine-twelfths of the stock of the Eastern Dynamite Company in exchange therefor, or nine-twelfths of \$1,400,000, which gave them \$1,050,000 of stock out of a total capitalization of \$2,000,000 and therefore control.⁴ After the transfer of the property of the Atlantic Dynamite Company to the Eastern Dynamite Company the directors of the latter concern caused to be incorporated in New Jersey the Atlantic Dyna-

¹ Op. cit. Def. Rec. Testimony, vol. ii, p. 617.

² Resolutions of Directors of the Eastern Dynamite Company. Gov't Exhibit No. 150, Pet. Rec. Exhibits, vol. iv, p. 1761-1762.

³ Ibid., Exhibit No. 149, p. 1760.

⁴ Laffin and Rand and the du Pont Company received also \$200,000 additional stock as their share of the Atlantic Dynamite deal. The holdings of both, including that of the du Pont's through the Hasard, which they owned outright, were in the year 1902, \$1,206,000.

mite Company and caused the Eastern Dynamite Company to subscribe for the entire issue of its stock amounting to 5500 shares.¹ This process left the Eastern Dynamite Company a mere holding corporation.

As a whole the dynamite trade was combined and consolidated with great rapidity. In 1895 the Eastern Dynamite Company entered into an agreement with the Aetna Powder Company known as the "Memorandum of Understanding," the object of which was to secure the apportionment of the dynamite trade between those two companies and the companies controlled by them. The two parties to the combination were to divide business between themselves upon a basis of the proportion of total trade enjoyed by each for the year ending June 30, 1895. If the Aetna over-sold its quota it was to pay Jonathan A. Haskell, representing the Eastern Dynamite Company, a penalty of two cents per pound on such over-sales. On the other hand, if the Aetna had not sold its proportion of the total trade it was to be reimbursed at the rate of two cents per pound by Haskell. A "Standing Committee" of five members with the same function as the Board of Trade of the powder combination was established. This committee was to meet monthly on, or as near as possible to, the date of meeting of the Board of Trade of the Gunpowder Association. Neither party of the two parties to the agreement was to interfere with the business of the other. If one took trade from the other by reducing prices, he was heavily penalized upon a demonstration of that fact. Trade diverted to an outside competitor was to be considered as belonging to an associate for at least six months and for three more if requested.

¹ Brief, vol. 2, p. 167.

If either company purchased any other high explosive company, it was entitled thereby, the other party not participating in the transaction, to sell a proportionally larger percentage of the total trade.¹ The advantage of this last arrangement was clearly with the Eastern Dynamite Company. Between the middle of 1896 and the middle of 1899 that holding company acquired the New York Powder Company, the United States Dynamite Company, Clinton Dynamite Company, Mt. Wolf Dynamite Company, American Forcite Powder Manufacturing Company, and several other concerns.²

At one time in its history the American Tobacco Company started to invade the territory across the water. In the case of the powder trust the reverse occurred. In 1897 foreign manufacturers of gunpowder, detonators, and high explosives began the erection of factories at Jamesburg, New Jersey. Representatives of the American combination, therefore, shortly crossed the water and opened negotiations with the foreign manufacturers who had begun the invasion. The result was that a satisfactory agreement was arrived at which has been known under various titles as the Jamesburg Agreement, the London Agreement, the International Agreement, and the European Agreement.³ This agreement is so typical an example of full-fledged international combination that its

¹ Memorandum of Understanding, Gov't Exhibit No. 236, Pet. Rec. Exhibits, vol. iv, 1991-1995. A supplementary agreement was entered into explanatory of this original. "Memorandum of Understanding," showing, among other things, the exact percentages allotted to each party. Cf. Supplementary Explanation of Original Agreement. Gov't Exhibit No. 247, Pet. Rec. Exhibits, vol. iv, pp. 2016-2019.

² A list of these companies is given in the supplementary explanation of the original agreement between the Aetna and Eastern Companies. Gov't Exhibit No. 247, Pet. Rec. Exhibits, vol. iv, pp. 2016-2019.

³ Brief, vol. 2, pp. 174-175. It is to be noted that the Judson Dynamite and Powder Company, and the Giant Powder Company Consolidated had not been before parties to the agreements of the Powder Combination but were brought into it in the European agreement.

principal provisions deserve detailed statement. They were: —

1. In regard to detonators the "European Factories"¹ agreed to abstain from erecting works in the United States, and to abandon the project begun at Jamesburg. The expenses so far incurred in the construction of this plant were to be shouldered by the "American Factories"² which also agreed to take of the "European Factories" five million detonators per year.³

2. As to black powder both parties bound themselves to erect no factories, the Americans in Europe, the Europeans in the United States. Each, however, was free to ship into the territory of the other.⁴

3. The arrangements in regard to smokeless sporting powder were the same as in regard to black powder.⁵

4. Smokeless military powder factories were not to be erected by the Americans in Europe or the Europeans in America. It was agreed that European factories upon receipt of an inquiry from the Government of the United States in regard to explosives, should first ascertain the price quoted or fixed by the American factories and were then bound to neither quote nor sell below that figure. Reciprocally the American factories on receiving an inquiry from governments other than their own, should, in like manner, obtain the price the European factories were quoting or had fixed and were bound not to quote or sell below it.⁶

5. For the sale of high explosives the world was divided into four districts. All of the United States, its territories and possessions, present and future, Mexico, Guatemala, Honduras, Nicaragua, and Costa Rica, Columbia, and Venezuela were to be exclusively American territory. All other countries in South America and the islands of the Caribbean Sea, not Spanish possessions, were to be common territory and designated as "syndicated territory." The Dominion of Canada and the Spanish possessions in the Caribbean were to be a free market unaffected by the terms of the agreement. The rest of the world was to be exclusively the territory of the European factories.

¹ These companies were Vereinigte Köln Rottweiler Pulver Fabriken of Cologne and the Nobel-Dynamite Trust Company (Ltd.) of London.

² Du Pont de Nemours and Company, Lafin and Rand, Eastern Dynamite, Miami Powder Co., American Powder Mills, Aetna and Austin Powder Cos., Cal. Powder Works, Giant Powder Co., Consolidated, Judson Dynamite & Powder Co.

³ European Agreement, Gov't Exhibit No. 119, Pet. Rec. Exhibits, vol. ii, pp. 1124-1125.

⁴ Ibid., p. 1125.

⁵ Ibid., p. 1125.

⁶ Ibid., pp. 1125-1126.

6. A chairman and vice-chairman were to be appointed by each party to the agreement. The chairmen or in their absence the vice-chairmen were to establish the rules for the accomplishment of the terms of the syndicate arrangement. (a) They were to agree, from time to time, upon a basis price for each market in syndicated territory, said basis to include the cost of manufacturing, freight, insurance, etc. (b) They were also to establish a selling price for each market to be regarded as a convention price below which no sales were to be effected. The difference between the selling and the basis prices was to be syndicate profit to be divided equally.¹

7. A common syndicate fund of \$50,000 was to be established by a payment of \$1.00 per case upon certain grades of explosives shipped into syndicated territory. When the sum of these assessments reached that figure the payments were to be reduced to 50 cents per case and from the fund thus established fines not recoverable from the parties were to be deducted. It was permitted that the chairman should utilize two-thirds of this common fund for the purpose of protecting the common interest against outside competition.²

8. Chairmen were to adjudicate all breaches of the agreement. On failure to agree they were to appoint an umpire, who was to be a European or an American according as the complaint was brought by the American or European factories.³

9. Fines: (a) for trading in the territory of the other, the penalty was the invoice value of the goods; (b) for cutting prices in syndicated territory, no limit was placed upon the amount of the fine; (c) for erecting a factory in the exclusive territory of the other, the penalty should not be less than £10,000.⁴

10. The agreement was to go into effect on July 15, 1897, for a period of ten years. In the absence of six months' notice it was to continue thereafter from year to year.⁵

The "European Agreement" was very shortly followed by the "Mexican Agreement." On October 1, 1898, the California Powder Works, the Judson Dynamite and Powder Company, and the Giant Powder Company, Consolidated, known as the "Western Companies," entered into a compact with the Eastern Dynamite Company and the Aetna Powder

¹ *Ibid.*, pp. 1127-1128.

² *Ibid.*, p. 1129.

³ *Ibid.*, p. 1128.

⁴ *Ibid.*, p. 1130.

⁵ *Ibid.*, pp. 1128-1129, 1130-1131.

Company, known as the "Eastern Companies," in regard to the Mexican trade.¹ A price schedule was prepared by the parties with which they agreed to comply during its continuance.² A "Board of Representatives" of two members was established for the Mexican business, one member to be appointed by the Eastern and one by the Western companies. These were given power to investigate complaints and impose penalties. If unable to adjust the matter satisfactorily, the representatives were to appoint two disinterested parties as arbitrators who should in turn appoint a third, if a decision was necessary, to constitute a Board of Arbitrators. Their decision was to be final.³ The agreement was to continue in force until December 31, 1899, and from year to year thereafter except upon notice of three months.⁴ As a matter of actual fact, parties continued to carry out the terms of the agreement down to 1905.⁵

The force of the Mexican Agreement was considerably strengthened by the arrangement of October 11, 1898, between the Eastern Dynamite Company and the Hancock Chemical Company, whereby the latter agreed to turn over its entire output — except an amount sufficient to supply the needs of certain specified mining companies, — in consideration of \$18,000 a year, for the privilege given of acting as their exclusive sales agent, and a price for their powder of 15 per cent over and above the cost of manufacture and delivery. The agreement was to go into force in November, 1898, for five years, and as usual the "year to year

¹ Mexican Agreement, Gov't Exhibit No. 268, *Pet. Rec. Exhibits*, vol. iv, p. 2061, f.

² *Ibid.*, pp. 2084-2085.

³ *Ibid.*, p. 2087.

⁴ *Ibid.*, p. 2097.

⁵ *Brief*, vol. 2, p. 192.

thereafter" clause was attached.¹ By a subsequent agreement the Lake Superior Powder Company and the Aetna Powder Company agreed to assume the obligations of this contract, the Eastern Dynamite Company failing performance.² A second supplementary agreement between the Eastern Dynamite Company and the Aetna and the Lake Superior Powder Companies provided that the two latter should bear a portion of the expense of the Eastern Dynamite Company's performance of its contract with the Hancock Chemical Company inasmuch as this contract was undertaken for the benefit of all the parties.³

The second period then, to summarize, saw the complete consolidation of the dynamite trade of the United States and the practical elimination of competition in that field as well as in the manufacture of gunpowder. The power and monopoly of the combination had been extended by numerous agreements, among which the European and Mexican may be mentioned most prominently.

PERIOD III

In the third period the steadily increasing concentration is further strengthened by the adoption of a corporate form of organization which placed one huge concern at the head of the greater part of the explosives business of the United States.

Prior to the year 1899, E. I. du Pont de Nemours and Company had been a partnership, but in that year it became a corporation under the same name.

¹ Hancock Agreement, Gov't Exhibit No. 265, Pet. Rec. Exhibits, vol. iv, pp. 2074-2078.

² Supplementary Hancock Agreement, Gov't Exhibit No. 266, Pet. Rec. Exhibits, vol. iv, pp. 2078-2079.

³ Second Supplementary Hancock Agreement, Gov't Exhibit No. 267, Pet. Rec. Exhibits, vol. iv, pp. 2079-2080.

In 1902, Eugene du Pont, who had been the active manager of the partnership and later of the corporation, died. None of the other stockholders were willing to assume the management of the corporation and as a result Alfred du Pont requested the coöperation of Pierre S. and Thomas Coleman du Pont, who had not previously been interested in the business. Subsequently there was incorporated in 1902, in Delaware, by Thomas, Pierre, and Alfred du Pont, a corporation known as the E. I. du Pont de Nemours Company (afterwards E. I. du Pont de Nemours and Company) for the purpose of purchasing the 1899 corporation. The company had a capital stock of \$20,000,000 and issued \$11,997,000, of which the three du Ponts got \$8,940,000 as promoters' profits.¹ Purchase money notes were issued to the amount of \$12,000,000, which together with the balance of the \$11,997,000 stock were exchanged for the properties of the old corporation by the new 1902 Delaware corporation.² In order to make this company a purely holding corporation there was organized the E. I. du Pont de Nemours and Company of Pennsylvania and the E. I. du Pont Company.³ To these two concerns the 1902 Delaware corporation then transferred all its physical properties and assets, retaining merely the securities of these two constituent companies.⁴

Not long after the organization of the Delaware corporation (1902) the du Ponts discovered that the Lafin and Rand Company was interested in sub-

¹ They subscribed in cash \$3000, and in return secured the control of the company for when the Government suit was brought in 1907, only a little over \$12,000,000 of stock was outstanding.

² Brief for the United States, vol. 1, pp. 69-71. Resolutions of Directors, Gov't Exhibit No. 168, Pet. Rec. Exhibits, vol. iv, pp. 1792-1793. Pleadings, Answer of H. A. du Pont, p. 313.

³ Brief, vol. 1, p. 72.

⁴ The capitalization of these companies was \$20,000 and \$10,000 respectively.

stantially the greater part of the same concerns as they themselves and also that the combined holdings of the du Pont and Laffin and Rand interests were sufficient to give control to these two concerns of the most of the companies in which they both held stock.¹ The du Pont company, moreover, owned no dynamite plant, altho it was a minority holder in the Eastern Dynamite Company, the Lake Superior Powder Company, and the California Powder Works. On October 1, 1902, the Delaware corporation had minority holdings in fifteen concerns, a majority holding in a sixteenth, a fifty per cent holding in a seventeenth, and owned all the capital stock of the Hazard Powder Company. The latter company in turn had minority holdings in six companies. At the same time the Laffin and Rand interests possessed minority holdings in thirteen companies, fifty per cent holdings in two companies, and majority holdings in two companies.² Of all the parties to the powder combination on October 1, 1902, only seven would not be controlled by the 1902 Delaware corporation if it could secure control of Laffin and Rand.³

The men at the head of Laffin and Rand at this time were all elderly and the du Ponts had no means of knowing what types of men might step in to take their places.⁴ As most of their own stocks were worthless for purposes of control, except in conjunction with Laffin and Rand, the du Ponts finally determined to buy out that concern. Laffin and Rand, however, at first demanded \$700 a share for their stock; but as

¹ Testimony of Pierre S. du Pont, *Def. Rec. Testimony*, vol. i, pp. 489-490.

² *Ibid.*, pp. 485-489 and 532-533.

³ *Brief*, vol. 2, p. 242.

⁴ *Ibid.*, footnote 105, pp. 490-491 and testimony of J. A. Haskell, *Def. Rec. Testimony*, vol. ii, pp. 1063-1064.

the du Ponts did not feel able to pay so large a sum in cash, matters were finally compromised. The entire capital of the Laffin and Rand Company was 10,000 shares of which certain parties held a majority block of 5,524 shares. Ten of the parties¹ who held the 5,524 shares also held 950 shares of the stock of the Moosic Powder Company. The same ten parties held 3,380 shares of the majority block of the 5,524 shares in the Laffin and Rand Company and they refused to sell the same unless they could also sell their holdings of Moosic stock at a certain price.² This demand was finally agreed to and thereupon Thomas Coleman du Pont secured an option upon the said 3,380 shares, the 950³ shares of Moosic stock and also upon the balance of the 5,524 shares.⁴

As the next step in the process the Delaware Securities Company was organized to purchase and hold certain stock to be purchased from Laffin and Rand.⁵ It began business with a paid-up cash capital of \$2,000, and an authorized capital stock of '\$4,000,000.⁶ On September 23d, the Board of Directors passed a resolution for the acquirement of 5,524 shares of the optioned stock of the Laffin and Rand Company to be paid for together with the services of T. C. du Pont by \$3,998,000 in the stock of and \$2,209,600 in the bonds of the Delaware Securities Company.⁷ This resolution of the Board was carried out, except that a small

¹ Gov't Exhibit Nos. 230 and 231, Pet. Rec. Exhibits, vol. iv, pp. 1979-1980.

² Cf. *Ans. of the Del. Investment Co., Pleadings*, p. 220.

³ *Resolutions of the Directors of the Del. Investment Co., Gov't Exhibit No. 166, Pet. Rec. Exhibits, vol. iv, pp. 1788, ff.*

⁴ *Resolutions of the Directors of the Del. Securities Co., ibid., pp. 1756, ff.*

⁵ *Answer of the Del. Securities Co., Pleadings*, p. 225.

⁶ *Certificate of Incorporation of Del. Securities Co., Gov't Exhibit No. 144, Pet. Rec. Exhibits, vol. iv, p. 1742.*

⁷ Cf. note 3.

portion of the stock was utilized in partial exchange for the shares of Laffin and Rand outside of the 5,524 purchased under the terms of the option.¹

In the same month the Delaware Investment Company was organized for the purpose of exercising the option held by T. C. du Pont for 950 shares of the stock of the Moosic Powder Company. It had, like the Delaware Securities Company, a paid-up capital of \$2000. Its authorized issue was \$2,500,000.² On September 23d, the Board of Directors authorized the purchase of the Moosic stock to be paid for, together with the service of T. C. du Pont in \$2,498,000 full-paid non-assessable capital stock and \$2,500,000 bonds.³ Now both the Moosic and Laffin and Rand stocks were purchased with the bonds of these two companies plus a stock bonus. Consequently in consideration of the services of Thomas Coleman du Pont in securing the consent of certain stockholders of Laffin and Rand to the sale of their property and that of the Moosic Company the two Delaware subsidiaries, *i. e.*, the Delaware Securities Company and Delaware Investment Company, transferred to the 1902 Delaware corporation, *i. e.*, E. I. du Pont de Nemours and Company a majority of their issues of stock of \$3,998,000 and \$2,498,000 respectively.⁴ In this manner the 1902 Delaware corporation secured complete control of all but ten of the companies in the powder and explosive business that had heretofore been members of the combination.

¹ Brief, vol. 2, p. 247.

² Certificate of Incorporation of the Del. Investment Co., Gov't Exhibit No. 145, Pet. Rec. Exhibits, vol. iv, p. 1747.

³ Cf., p. 472, note 4.

⁴ The total actual payment for the entire Laffin and Rand property including minority holdings was about \$4,000,000 in bonds and a stock bonus of 20 per cent; for the 950 shares of Moosic about \$2,350,000 in bonds and a 25 per cent stock bonus. Cf. Testimony of Pierre S. du Pont, Def. Rec. Testimony, vol. i, pp. 519-522.

These ten concerns were as follows: —

Austin Powder Company; California Powder Works; American Powder Company; Miami Powder Company; King Powder Company; Aetna Powder Company; Giant Powder Company; Judson Dynamite and Powder Company; Hancock Chemical Company; Equitable Powder Manufacturing Company.¹

It will, however, be recalled that of these concerns both the Judson and the Giant Companies had been parties to the European Agreement;² that the Eastern Dynamite Company had working agreements with the Hancock Chemical Company which the Aetna had bound itself to observe,³ and that the Aetna and Eastern Dynamite Company had also entered into an agreement with each other known as the "Memorandum of Understanding";⁴ and finally that by another agreement the output of the King Company for a period of twenty-five years from 1901 was under the control of the 1899 Delaware corporation which had been reincorporated as the 1902 Delaware corporation and Lafin and Rand.⁵ It is also to be noted that the Miami Powder Company and American Powder Mills were at that time and continued to be down to 1904, partners to the Fundamental Agreement of 1896, and to the European Agreement down to the date of its discontinuance in the fall of 1906.⁶

¹ The Austin Powder Co., the Cal. Powder Works, and the Equitable Powder Mfg. Co. have been included in this list because they were not absolutely controlled. It should be borne in mind, however, that the 1902 Delaware corporation acquired, through Lafin and Rand, and the 1899 Delaware corporation 32 per cent of the stock of the first, 20 per cent of that of the second, and 49 per cent of that of the third.

² *Supra*, p. 466, note 2.

³ *Supra*, p. 469, note 1.

⁴ *Supra*, p. 465, note 1.

⁵ *Supra*, p. 463, note 4.

⁶ Brief, vol. 1, p. 79.

Between October, 1902, and July 28, 1903, the 1902 Delaware corporation further acquired stock in five companies¹ in which it had not hitherto had any direct interest and also made further acquisitions in the stock of its own subsidiaries.

In Pennsylvania there were operating besides E. I. du Pont de Nemours and Company, of Pennsylvania, four other companies: the Moosic Powder Company, in which the 1902 Delaware corporation had acquired a 31.66 per cent interest at the time of the Laffin and Rand transaction; the Consumers Powder Company of whose stock it held 25.23 per cent; the Enterprise Manufacturing Company in which it owned a 35.12 per cent interest and the Oliver Powder Company of whose stock it was sole owner.² On September 11, 1903, all these companies were merged in E. I. du Pont de Nemours and Company of Pennsylvania, a corporation with a capital stock of \$1,275,000, 7 per cent preferred, and \$725,000 common.³

On May 13, 1903, the E. I. du Pont de Nemours Powder Company was organized under the laws of New Jersey with a capital stock of \$50,000,000 equally divided between common and preferred.⁴ To the 1902 Delaware corporation it issued \$15,600,000 preferred and \$13,600,000 common (a majority in both classes) in consideration of the equity which the 1902 Delaware corporation held in all the stocks which it

¹ Twenty-five per cent of the stock of the Ferndale Powder Co.; 75 per cent of that of the Conenough Powder Company; 39 per cent of the Judson Dynamite and Powder Company; 50 per cent of the Shenandoah, and 32.37 per cent of the stock of the Globe Powder Company.

² Gov't Exhibit No. 178, Pet. Rec. Exhibits, vol. iv, p. 1805-1806. Answer of E. I. du Pont de Nemours and Co., Pleadings, p. 135.

³ Agreement for Merger, Gov't Exhibit No. 255, Pet. Rec. Exhibits, vol. iv, p. 2029 ff.

⁴ Certificate of Incorporation, Gov't Exhibit No. 71, Pet. Rec. Exhibits, vol. i, p. 377 ff.

controlled.¹ The New Jersey company further guaranteed principal and interest of the obligations of the 1902 Delaware corporation incurred in the purchase of the properties of the 1899 Delaware corporation.²

Further combination followed swiftly. The New Jersey company next acquired 16,835 shares in the California Powder Works in addition to twenty per cent of its stock already held,³ thereby securing control of the majority thereof. The California Investment Company was then organized by the 1902 Delaware corporation and T. C. and P. S. du Pont then caused it to issue its bonds for practically all of the capital stock of the Judson Dynamite and Powder Company.⁴ This left uncontrolled by the combination only three companies, which had been parties to the agreement of 1896. These three concerns on July 1, 1904, entered into an agreement with the combination to continue until June 30, 1905, and thereafter unless three months' notice in writing of the discontinuance of said agreement were served.⁵ The terms were practically the same as those of the Understanding of 1896⁶, and the Dynamite Agreement of 1895.⁷ In March, 1905, the agreement was discontinued by the action of the Aetna and the Miami companies.⁸

¹ Answer E. I. du Pont de Nemours & Co., Pleadings, pp. 124-125 and Gov't Exhibit No. 178, Pet. Rec. Exhibits, vol. iv, p. 1803, ff.

² Brief, vol. 2, pp. 285-286. By this series of operations the 1903 N. J. Co., acquired control of all the capital stocks formerly held by the 1902 Delaware corporation, the Hazard Powder Company and subsidiaries, Laffin and Rand and controlled companies and the Eastern Dynamite and controlled companies.

³ See p. 476, note 1.

⁴ Answer E. I. du Pont de Nemours Co., Pleadings, p. 140.

⁵ The Sullivan Agreement, Gov't Exhibit No. 237, Pet. Rec. Exhibits, vol. iv, p. 1995 ff.

⁶ *Supra*, p. 456, note 6.

⁷ *Supra*, pp. 466-467.

⁸ Brief, vol. 2, p. 292. It was claimed that the trade of those withdrawing, however, was respected by the combination, more especially because it was so insignificant. Testimony E. C. Ferriday, Def. Rec. Testimony, vol. i, pp. 48-53.

On July 1, 1903, a sales board was organized and a complicated system of salesmanship put in force by the combination with a system of reports to the "Trade Record Bureau" at Wilmington, Delaware. In further pursuance of the combination 49,950 shares of the California Vigorit Powder Company were purchased and between August, 1903, and May 8, 1909, all the capital stock of the Metropolitan Powder Company was also acquired by the combination.¹

In 1903, the American E. C. & Schultze Gunpowder Company, a corporation of Great Britain, commenced to compete with the combination; but in the same year it transferred its properties and business to the E. I. du Pont Company, a subsidiary of the New Jersey company for a period of ninety-nine years in return for a yearly rental of £3,750.² In the same year the International Smokeless Powder and Chemical Company began operating a plant in the state of New Jersey where it manufactured Government Ordnance Powder for sale to the army and navy of the Government of the United States. To secure control of this corporation the du Pont International Powder Company was organized in Delaware³ with a capital stock of \$5,000,000 preferred and \$5,000,000 common. It issued \$10,000,000 of its bonds and a large share of its preferred stock for a majority of the capital stock of the International Smokeless Powder and Chemical Company.⁴ From time to time, the stocks of other competing companies were also acquired.

¹ Resolution of Directors. Gov't Exhibit No. 188, Pet. Rec. Exhibits, vol. iv, pp. 1833-1834 and vol. iii, p. 1097.

² Indenture. Gov't Exhibit No. 307. Pet. Rec. Exhibits, vol. v, pp. 2359-2374. Cf., especially pp. 2359 and 2368.

³ Certificate of Incorporation, Gov't Exhibit No. 76. Pet. Rec. Exhibits, vol. i, pp. 450, ff.

Answer of the E. I. du Pont de Nemours and Co., Pleadings, pp. 145-147.

From this time to the bringing of suit in 1907 by the Government, the combination continued to operate substantially as before. Competition, it is true, was not eliminated, but was none the less reduced to a comparatively small portion of the trade, as is shown by the following table: —

PERCENTAGES SOLD BY COMPANIES CONTROLLED BY
E. I. DU PONT DE NEMOURS POWDER COMPANY

Year.	Black Blasting Powder	Saltpeter Blasting Powder	Dynamite	Black Sporting Powder	Smokeless Sporting Powder	Gov. Ordinance
1906	64.6	80	72.5	75.4	70.5	All
1906	63.4	69.5	73	72.6	61.3	"
1907	64	72	71.5	73.6	64	"

In 1907, the habit of cutting prices was discontinued. In the latter part of that year the first printed schedule of prices was put out and the sales prices were subsequently held very close to these lists with little or no deviation except in the case of large contracts.¹

In this connection a word ought to be said in regard to prices. At the very outset prices were fixed, immediately after the organization of the Gunpowder Trade Association. It has already been shown that increases in prices were made subsequent to the agreements of both 1886 and 1896. There is ample testimony also to show that prices were raised after the acquisition of the Laffin and Rand interests in 1902, again between 1902 and 1904, and also by the sales board in 1907. Unfortunately the data are not sufficient to permit the preparation of a table showing these various price changes. The reasons that make this a practical impossibility are two. The first is

¹ Testimony of G. F. Hamlin, Charles W. Phellis, F. C. Peters, F. W. Stark, and others. Def. Rec. Testimony, vol. i, pp. 60-61, 97, 185-186, 188, 202, 228-229.

that, as noted in the preceding paragraph, a printed schedule of prices was not published until 1907. Prior to that date prices were fixed and altered at the meetings of the various boards and committees, and are to be followed only in the minutes of these price-making organs. In the second place, prices in the powder trade, as in the oil business, have been largely local. Between various parts of the country there have been wide discrepancies. The general policy in prices appears to have been to charge what the traffic would bear. It should be borne in mind, however, that tho the policy of the powder combination has been to this extent analogous to that of the Standard Oil Company, the former has been much more limited than the latter by the factor of potential competition. The manufacture of powder does not require a very great amount of capital and high profits appear to call potential competition into being. For this reason it has been impossible for the Powder Trust, until recently, either to maintain fixity in prices, or to raise them to such a height as might have been the case under other conditions. Yet it would be entirely unsafe to conclude either that the profits on powder have not been excessive or that the high profits have resulted from other causes than the large degree of control exercised by the combination.

Decidedly the most interesting feature of the combination after the formation of the 1902 and 1903 corporations was the policy pursued with regard to subsidiary companies. The 1903 corporation and the Eastern Dynamite Company had up to 1907 acquired the stocks of more than one hundred corporations. In April, 1904, the dissolution of these companies was begun and in that year and 1905, a large portion

of them were dissolved. By 1907, sixty-four of the subsidiary corporations had passed out of existence.¹

In a sense this is a comparatively new and original method of procedure. The du Pont Company has been the only industrial combination that has resorted to such a process upon an extended scale. The ultimate object of this policy was to create a single huge concern in the control of the powder trade and to vest absolutely therein the ownership of all the plants and factories which had formerly belonged to the various subsidiary companies. It was designed also, as soon as possible, to discontinue the Laffin and Rand and the Hazard Powder Companies, the Eastern Dynamite Company, and the Delaware Securities and Delaware Investment Companies.² Had the Government's suit not intervened this result would have probably been attained and we should have had a unique form of industrial combination. The property of the dissolved companies was purchased outright, and the title probably cannot be impaired by the courts. The problem of dissolution therefore that the courts have to deal with is one that presents apparently a greater degree of difficulty than was involved in either the Standard Oil or Tobacco decisions. As the Court remarks: "The dissolution of more than sixty corporations since the advent of the new management in 1902, and the consequent impossibility of restoring original conditions in the explosives trade, narrows the field of operation of any decree we may make."³

The Circuit Court adjudged the combinations in restraint of commerce in explosives and with attempting

¹ Cf. List of Companies "Opinion of the Court and Interlocutory Decree", pp. 31-32.

² Ibid., pp. 31-32.

³ Interlocutory Decree, pp. 43-44.

to monopolize and monopolizing a part of such commerce. They were enjoined and ordered to dissolve. The decree was made interlocutory and the defendants were to be heard again,¹ as to the nature of the injunction and as to any plan of dissolution which they might have to suggest. It can hardly be doubted that such plan will be of great interest, owing to the peculiar policy pursued by the combination within the last few years, and the rapid approach that has been made to a great single monopolistic corporation. At the date this article goes to press, however, the dissolution plan has not been decided upon. At a hearing in the early part of March, lawyers and judges failed to reach an agreement.

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¹ Originally the court set the hearing for October 16, 1911, but it has been postponed from time to time.

TAXATION IN CHINA¹

SUMMARY

The present system of taxation archaic, 482. — I. The Land and Grain Tax, 484. — Diversity of weights and measures, 486. — Divergences of taxes from the nominal levies, 489. — II. Customs, 492. — The Imperial Maritime Customs, 494. — Native Customs, 495. — Native Customs administered by Imperial Service, 498. — III. Likin, 499. — IV. The Salt Gabelle, 502. — V. The Grain Tribute, 506. — VI. Miscellaneous taxes, 507. — The finances in 1912, 509.

ONE of the greatest needs of China today is a reasonable system of taxation. That in force is archaic. Not only is there need of reform in the method of levying and collecting the taxes but in the expenditure of the revenue as well. A more accurate system of accounting is desirable. These needs have already received some attention from the Provisional National Assembly, which submitted last January a budget for the year ending in February, 1912. The system of taxation which I shall describe, tho deep-rooted in antiquity, is not likely to continue. It will probably disappear in the struggle now going on, no matter whether monarchy or republic may

¹ The following paper is based upon an examination of the *Ta Ch'ing Hsi Tien* or Institutes of the *Ta Ch'ing* Dynasty, the *Chio Chi' CA'wan Han*, the official "Red Book" of China, and the *Tsao Yen CA'wan Shu* or Complete Book of the Tribute; upon official reports and memorials published in the *Nei Ke Kuan Pao*, the official journal of the Imperial Government and successor to the Peking Gazette, and reports of the Imperial Maritime Customs.

The author has also consulted with profit the Journal of the China Branch of the Royal Asiatic Society; particularly that of 1887, containing an article by Professor E. H. Parker and Carles' translation of Zwehtkoff's report on the Salt Revenue of China, that of 1888 containing Oxenham's report on Land Tenure and the Condition of the Rural Population in China, that of 1892-93 with von Rosthorn's paper on the Salt Administration of Szechuen, and that of 1895-96 with an article by Professor E. H. Parker on the Chinese Revenue and another on The Financial Capacity of China.

The author acknowledges valuable assistance also from H. B. Morse's Trade and Administration of the Chinese Empire, particularly the chapter on Revenue and Expenditure; and also from a pamphlet by Sir George Jamieson on Land Taxation in the Province of Honan.

triumph, since both are committed to the adoption of modern methods.

Judged by the total amount of money contributed to the Peking Government, the taxation of China has not been heavy. A revenue of three hundred million taels, or one hundred and ninety-five million dollars, from three hundred million people is insignificant. Even the addition of the estimated revenue of the provinces makes but a total of a little more than six hundred million taels, or about four hundred million dollars.

But it is impossible to discover accurately how much is taken from the people. The viceroys and governors, prefects and magistrates, are bound by old custom to supply a minimum of revenue to their superiors, and this is usually the maximum sent. The taxes are practically farmed out to the official in charge. If he preserves peace and order and remits the usual sum to the treasury, he is not disturbed.

It must be remembered, also, that but a small part of the revenue is expended for the public welfare. There are fifteen hundred walled cities in China, yet none of them have water works except two or three that have introduced them very recently. Street lighting, save by the feeble glimmer of an occasional oil lamp, was unknown outside the foreign settlements until after 1900. The national police system was organized in 1905. Previous to that date night watchmen paid by private subscription were the chief reliance for protection against thieves. There was no system of public education until 1906. Most schools were maintained by private enterprise, tho there was found here and there a charity school supported by some generous individual. The Government confined its efforts to the establishment of a system of examina-

tions. Good roads are undreamed of, except that in a few cities macadamized streets have recently been constructed. In southern towns the streets are too narrow for carriages and are mostly paved with brick and stone. There are beautiful bridges in some parts of China, but the country roads are mere tracks, impassable in wet weather. If taxation has been light, the results which the people have procured in public works are even less.

I. THE LAND AND GRAIN TAX

This has been the chief dependence of the government for revenue from of old. When the Manchus took over the government of China in 1644 A.D., they retained the fiscal system of preceding dynasties but lessened somewhat the rate of taxation.

In 1713 the land tax was definitely fixed for all time at the rate paid that year, and the imperial promise was given that it should not be increased. While this promise may have been literally fulfilled, the actual amount of money taken from the tax-payer has been very greatly increased by manipulation of the exchange between copper and silver and by various charges under other names than "land tax." Justification for the accretions may, perhaps, be found in the great changes that have taken place during two hundred years in the relative values of silver and copper money, in wages, and in land values. Tho the tax may have been originally intended to be proportionate to the value of the land and tho it does vary with the value of the land taxed, it is not as a fact levied upon land values, since the most valuable of all lands, that in the cities, is not taxed at all.

The land tax as levied in 1713 A.D. is a consolidation of the land and the poll tax. All free Chinese

subjects originally owed certain personal service to the state. The old-time *corvée* was commuted for a money payment, and this poll tax has been combined with that on the land.

Much of the land held by the princes is upon military tenure, having been granted to the ancestors of the present proprietors for services rendered at the conquest. These lands are not taxed. Other lands are occupied by military colonists, banner-men, settled in certain frontier districts or in other regions which required the presence of the soldiery for the preservation of peace or the protection of the grain transport. These lands are more lightly taxed than those held under ordinary tenure; but in a number of cases, military service being no longer required of the occupants, the lands have been transferred to the list of ordinary agricultural lands and the taxes increased accordingly.

The land tax (by which, it must always be understood, is meant the tax on ordinary agricultural lands) is of two kinds: a tax in money and a tax in grain. For instance, in Chihli, the metropolitan province, the taxable lands of ordinary Chinese subjects pay per annum from Tls. 0.0081 to Tls. 0.13 for each *mou*, besides rice to the amount of from one *sheng* to one *tou* and beans from 9 *ko* 8 *shao* to 4 *sheng*. This does not include the tribute grain, which will be considered separately.

The weights and measures of China, however, are not uniform throughout the empire. A *mou* is generally a little less than one-sixth of an acre, but, as Morse states¹ it varies from 3,840 square feet to 9,964 square feet. The tribute *tou* contains 629 cubic inches, but as a measure used by the people it varies from 176 to

¹ H. B. Morse, *Trade and Administration of the Chinese Empire*, p. 174.

1800 cubic inches. By the British treaty, for customs purposes a catty, or *chin*, is taken as equal to 21½ ounces avoirdupois, and a picul by weight varies from 94 catties for brown sugar to 140 catties for tribute rice at Nanking. In 1909, by imperial edict, standard weights and measures were adopted, the *tou* being fixed at 10.355 litres, the *mou* at 6.144 acres, and the catty at 596.816 grams; but this edict has not as yet had any practical effect.

The tax in kind is levied in measures of capacity, but in practice it is collected either by weight or in money and at rates of conversion fixed by the collector.

But the value of the Chinese tael is no less variable than are the weights and measures. It has changed greatly since the period when these taxes were laid. A tael is a Chinese ounce of silver and, whereas the ratio between gold and silver today is perhaps as 35 to 1, in the early part of the eighteenth century it was not more than 15 to 1. The purchasing power of silver money was then much greater, and a tael of silver paid in taxes in 1713 meant far more to the Chinese peasant than the same amount today. On the other hand, it must not be forgotten that the peasant uses few foreign commodities and that the exchange value of silver in gold has had but little effect upon the prices of articles in daily use by him. Copper has always been the money of the people in China and copper has appreciated in recent years as compared with silver, so that the peasant finds it somewhat easier than his grandfather did to buy a tael of silver, while at the same time he receives more copper for his wages.

These facts should be borne in mind, with reference to the figures used in the present paper. The following

equivalents for those employed in the Chinese statutes, tho not rigorously exact, are approximately correct for today:—

One Tael equals \$0.65.

One Mou equals one-sixth Acre.

One Picul equals 3.4 Bushels.

One Tou equals 1.36 Pecks.

One Sheng equals 1.095 Quarts.

One Catty equals 1½ Pounds (average).

One Picul (weight) equals 133½ Pounds (average).

The limits of this paper do not permit me to state in detail the various classifications of land in the twenty-two provinces of China and the different rates of taxation. There is no uniformity; each province follows its own customs. I confine myself to citing a very few of the numerous and complicated provisions of the *Ta Ch'ing Hui Tien* relating to the subject.

In Shengking, one of the Manchurian provinces, ordinary agricultural land is taxed from \$0.04 to \$0.12 an acre in money, and in rice from 1.7 pecks to 1.54 bushels. Manchuria is but partially settled, and was of course much less developed two hundred years ago than now. Squatters sometimes settle on government lands, and in such cases rent is seemingly included in the tax, for they are required to pay \$1.90 and 2.9 quarts of rice per acre.

I have already mentioned the rate for Chihli, the province in which Peking is situated. Reduced to western terms the tax varies from \$0.032 to \$0.51 an acre in silver and in grain from 1.09 quarts to 1.36 pecks of rice and from 1.07 quarts to 4.37 quarts of beans. Mulberry orchards are taxed \$0.007 an acre.

In Kiangsu, the province which lies at the mouth of the Yangtze, the tax varies from \$0.035 to \$0.55 an acre in money and in grain from 1.2 pecks to 3.93

bushels of rice or beans, and from .03 pints to .39 pints of wheat or barley. There are certain lands in the province, however, which are rated higher and pay from \$0.35 to \$1.29 an acre with an addition of 4.8 quarts to 5.7 pecks of rice and from .013 to 1.05 pints of wheat or barley.

In Anhui, the next province west of Kiangsu, mulberry orchards are taxed \$0.25 on each pound of raw silk produced. Chekiang, of which Hangechow is the capital, levies a tax on the tea lands at the rate of \$0.001 and .15 pint of rice for each tea shrub.

Salt lands are taxed in various provinces; in Shantung at the rate of from \$0.10 to \$0.17 and 2.7 quarts of wheat or barley together with rice from 1.18 quarts to 2.33 pecks per acre. In Chehkiang the same sort of land is taxed from \$0.06 to \$0.56 an acre in silver and in grain from 2.4 quarts to 3 pecks of rice.

In the province of Kuangtung, of which Canton is the capital, the land tax varies from \$0.03 to \$0.87 an acre and the grain tax from 4.27 quarts to 1.88 pecks of rice per acre. In addition there is a small tax for drainage ditches and a tax of \$0.26 per 100 square feet for irrigation.

In far-away Kansu, on the borders of Turkestan, the land tax ranges from \$0.0008 to \$0.50 an acre, and the grain tax from .2 quart to 6.66 pecks, together with a small amount of hay. The Turcoman tribes in addition pay a household tax of \$0.20 plus an additional quantity of grain.

Taking the whole empire into consideration, we may say that the land tax varies from \$0.004 per acre for the poorest land in Shansi to \$0.99 per acre for the best in Chehkiang, and the grain tax from one gill of rice per acre in certain parts of Fukien to five and a half bushels an acre in some districts of Shansi. The

grain tax is as a rule commuted for a money payment, the rate as laid down in the statute varying from Tls. 0.50 to Tls. 1.20 a picul. We may take Tls. 0.80 a picul as the average price, which amounts to \$0.155 a bushel. This is a very low rate as compared with present or recent market prices. Rice usually sells wholesale at about one dollar a bushel. It has of course been much higher recently owing to extraordinary conditions. It would be a mistake, however, to imagine that the farmer today commutes his grain tax at the low rate mentioned in the statute. I have already called attention to some of the methods employed by the tax collectors to increase the amount due from the peasant without adding to the nominal rate. The tax in money is levied in silver but paid in copper. A tael of silver at Shanghai exchanges today for 1,665 copper cash, and the imperial tael, therefore, should command about 1700 cash. But when the tax collector arrives he will demand much more than the difference between an imperial treasury tael and the local tael. Frequently he demands twice as much as the market rate. In addition he will demand certain fees, such as meltage, expense of collection, and the like, originally irregular, but now legalized by usage.

In the case of the grain tax the opportunities for increasing the amount due are still greater, for not only can the exchange between copper and silver be manipulated in commuting the tax, but the tax is levied in measures of capacity and often collected by weight, and the difference between the imperial and local standards of weights and measures provides an easy method of increasing the revenue. Sir George Jamieson¹ reports cases that came under his notice

¹ Land Taxation in the Province of Honan.

in which the tax in money had been gradually increased by as much as 186 per cent over the original levy and the grain tax by as much as 220 per cent. He estimates an average increase of the land tax throughout the empire by 128 per cent and of the grain tax by 210 per cent. If we accept these estimates and calculate the value of the grain at the wholesale rates for 1910, the land and grain tax paid by the farmer of Manchuria will amount to 1.2 per cent of the value of his first-class land, which Rev. John Ross put at \$75.00 an acre.¹ Taking the lowest rate of taxation for the cheapest land, the tax in Shantung will amount to about one-third of one per cent and in Chihli to 2.2 per cent.

Mr. Morse² intimates that the taxation varies inversely as the distance from Peking; but the figures do not bear this out. The rates for Chihli, Kiangsu, Chehkiang, Fukien, and Kuangtung do not vary greatly, but they are somewhat heavier per acre in the southern provinces. In the provinces just mentioned the lowest rates are, Chihli, \$0.032 per acre; Kiangsu, \$0.035; Chehkiang, \$0.058; Fukien, \$0.066; Kuangtung, \$0.032. Taking into account the smaller amount of the grain tax in Chehkiang and Fukien, the rate is nearly the same for all.

Allowing for the greater fertility of the lands in the Yangtze Valley and in the other provinces mentioned, and their greater value due to density of population and proximity to the seaboard and water ways, the tax is, of course, proportionally lighter than in Chihli. But on the other hand these provinces contribute to the imperial treasury in ways unknown in Chihli — in silks, porcelain, tea, and other precious articles.

¹ *Journal of China Branch of the Royal Asiatic Society*, 1887.

² *Trade and Administration of the Chinese Empire*, p. 92.

The total revenue of the imperial exchequer from the land and grain tax is set down in the *Ta Ch'ing Hui Tien* at Tls. 25,608,605 or \$16,645,593.25, but by the methods of accretion mentioned above this sum has grown to be Tls. 48,101,346 or \$31,265,874.90, according to the budget submitted by the Provisional National Assembly last year.

This, however, is not the sum total of the tax as paid by the farmers. A very large proportion of the levy is retained for provincial and local purposes.

Formerly the amount to be retained was definitely fixed by law for each province. In Chihli, for instance, the provincial authorities were allowed to retain out of the original levy of Tls. 1,708,521.48 an amount equal to Tls. 745,299, and out of the accretions, legalized as a "supplementary tax" and amounting to Tls. 211,856.25, the additional sum of Tls. 102,052. The percentage allowed varies from province to province but does not differ greatly from that for Chihli. Parker, and after him Jamieson and Morse,¹ have calculated that a much larger sum is spent upon the provincial administration than upon the imperial; and bearing in mind the fact that the total sum levied upon any one province is the minimum expected and that the amount sent rarely exceeds the minimum, it is easily seen that the estimates of the writers mentioned are probably not too large. Morse puts the contribution to the Imperial Treasury from the land and grain tax at Tls. 25,887,000, that to the provincial treasuries at Tls. 67,060,000 and to local uses at Tls. 9,315,000, making a total of Tls. 102,262,000 or in our own currency \$66,470,300. Others, however, estimate the total at not less than Tls. 375,000,000, or \$243,750,000.

¹ Trade and Administration of the Chinese Empire, pp. 111-118.

In 1904, Sir Robert Hart published a pamphlet in Chinese recommending a readjustment of the land tax. The Government, fearing that agrarian disturbance might result, declined to adopt his recommendations, but they are of interest as showing what could be obtained by a fair system of taxation. He estimated the cultivable land of the empire at more than 666,000,000 acres, which, at a moderate tax of Tls. 0.10 a *mou* or Tls. 0.60 an acre, would yield a revenue of Tls. 400,000,000 or \$260,000,000.

II. CUSTOMS

Another source of imperial revenue of ancient origin is the customs. Duties are collected not only upon imports and exports, but upon goods in transit from one portion of the country to another.

In 1818 A.D., when my edition of the *Ta Ch'ing Hui Tien* was published, there were thirty-three principal stations where such duties were paid, and since that date the number has been considerably increased. Each station extends its control of trade by the establishment of branches at the less important towns in the district under its supervision.

In 1853, during the Taiping Rebellion, the imperial government having lost control of Shanghai, the collection of duties payable by foreign merchants was undertaken as a temporary arrangement by the consuls of Great Britain, France, and the United States, the three foreign powers chiefly interested.

This arrangement did not prove to be entirely satisfactory, and in 1854 a commission representing the three powers was organized for the supervision of the foreign trade of Shanghai. It proved to be so efficient in its management of the customs that complaint was made by Shanghai merchants that they

were at a disadvantage as compared with those in ports where the lax methods of the Chinese officials were employed. In 1858, therefore, the Chinese Government agreed to extend the system of foreign supervision to other ports open to foreign trade. In 1861, the customs at seven such ports were thus administered, but only so far as foreign trade was concerned. This was the beginning of the Imperial Maritime Customs Service, which, with a large staff of Europeans and Americans aided by Chinese subordinates, has become the efficient instrument of the imperial government for the supervision of all trade throughout the empire conducted in vessels of foreign type.

The trade conducted in native craft, as well as the caravan trade, remained until November 11, 1901, under the jurisdiction of the old-time customs service, which, in contradistinction to the newer maritime customs, came to be known among foreigners as the "native customs."

After the so-called "Boxer" uprising, it became necessary to find revenues to pledge as security for the payment of the indemnity; and, the unpledged balance of the maritime customs being insufficient, it was decided among other measures to place the native customs stations located within fifty *li* (sixteen and two-thirds miles) of an open port under the administration of the maritime customs.

The Chinese Customs to-day, therefore, is divided among three services, each having its own field of operations, each employing its own methods and enforcing the collection of duties under a variety of tariffs, — the Imperial Maritime Customs, the Native Customs, and the Native Customs administered by the Imperial Service.

1. *The Imperial Maritime Customs.* In so far as the Imperial Maritime Customs is concerned, the levy of duties is uniform at all ports of the empire. The revenue derived is accurately known, being reported quarterly and annually in English and Chinese in the customs publications, which supply valuable statistics regarding the foreign trade of China, — the only accurate statistics of any kind published by the Chinese government.

The duty on exports is fixed by the tariff of 1858 agreed upon in the Tientsin Treaties with Great Britain, France, and the United States. This tariff is specific, but based upon a levy of 5 per cent ad valorem according to the values of 1858.

The tariff on imports is also specific, and was likewise in 1858 the equivalent of a duty of 5 per cent ad valorem. In 1901, the specific duties were found to have become much less than 5 per cent ad valorem owing to the decline in the gold value of the silver tael, and it was agreed in the protocol of September 7, 1901, that the import tariff should be revised and increased to an effective five per cent. This was done in 1902, and the duties so levied were converted into the specific tariff which is that now in force.

In addition to the export and import duties this service collects also (1) a coast trade duty amounting to one-half of the import or export tariff duty; (2) transit duties on internal trade, amounting to one-half the import or export duty, and levied in commutation of the likin payable at various stations on inland routes of trade; (3) tonnage dues on shipping, and (4) duty and likin on opium.

The receipts derived from these services in 1910 were as follows: —

Import duties,	Tls. 13,022,598.25	equals U. S.	\$8,594,914.85
Export duties,	Tls. 12,980,270.12	" "	\$8,566,978.28
Coast Trade duties,	Tls. 2,123,797.37	" "	\$1,401,706.26
Opium duties,	Tls. 1,212,998.72	" "	\$ 800,579.16
Opium likin,	Tls. 2,839,023.25	" "	\$1,873,755.34
Tonnage dues,	Tls. 1,329,023.81	" "	\$ 877,155.71
Transit dues,	Tls. 2,064,167.10	" "	\$1,362,350.29
<hr/>			
Total	Tls. 35,571,878.62	" "	\$23,477,439.89

2. *Native Customs.* The tariff enforced by the native customs varies at every station, and in most cases it is antiquated. That of Santuao, when the station was taken over in 1901, dated from 1725 A.D., that at Foochow from 1731, that at Ningpo from 1785, and that at Shanghai from 1786.

In some cases the lists contain articles no longer known in the trade of the port and omit others that have become items of considerable importance. In all cases the original tax is increased by extra levies under a variety of names, such as the meltage fee at various stations, duty on the wrapper or box containing the goods, an equalization fee (*i. e.*, a percentage charged on the sum total of the duty), and other fees. Certain duties are charged in taels but paid in cash at artificial and exorbitant rates of exchange. Three different tariffs were applied at Kiungchow. The system, or lack of system, is further complicated by unusual methods of measurement, by differing weights, and calculation of various duties in different sorts of money. Then there are to be added application fees, boatmens' gratuities, and examiners fees, all of which have become fixed and legitimate charges.

As a rule but a small portion of the collection is sent to the imperial treasury, the greater part being retained to pay armies of superfluous assistants. No better description can be given, perhaps, than that of Mr.

Fred Carey in his report upon the native customs of Santuao, which was taken over by the Imperial Maritime Customs in 1901: ¹ —

The Native Customs revenue is derived from two sources;

- (1) Import and Export duties,
- (2) Fees or dues.

The duties are assessed in accordance with a tariff compiled during the reign of Yungcheng, about A.D. 1725, and approved by that Emperor. The duties are low; they average about two and one-half per cent ad valorem, but there are some notable exceptions. For example coarse chinaware (in which is included pottery) pays more than ten per cent ad valorem. The tariff is obsolete and cumbersome. Many goods now met with are not mentioned in it at all, while in other cases the classification is too minute. Thus under silk piece-goods there are more than six hundred subheadings. Dues is the collective term now used to describe a large variety of fees which were formerly levied separately and under various names on junks and their cargoes. Though undoubtedly of irregular origin these charges may be said to have been legalized by time and usage. Some were probably introduced to make up for anomalies or deficiencies in the tariff proper; a few are of the nature of tonnage dues; others seem to have been voluntarily subscribed by traders to purchase partiality of treatment, clearance at night or quick despatch. But there can be no doubt whatever that the majority of the fees were instituted for the purpose of supplementing the official pay of the Native Customs employes, which under the former administration was entirely inadequate. For the same reason what were intended to be temporary or special fees often became fixed and recurring charges. . . .

The various fees were calculated and collected separately. A boat bound for Ningpo with a cargo of salt fish paid six separate fees. In addition there were package and license fees which had to be collected in one or other of nine different ways according to whether the boat carried ten, twenty, thirty or more piculs. . . .

At the time we assumed control of the Native Customs the amount of revenue that had to be remitted by the Tungchung office to the government was fixed at Tls. 9,000 per annum. In addition the director paid, it is said, Tls. 2,000 to the provincial authorities as the price of his appointment. The staff numbered nearly six hundred persons, whose salaries ranged from Mex. \$0.50 to Mex. \$5.00 a month. During the first year of our administration, 1901-02, the number of employes was reduced to 96. All monies collected were brought to account and the revenue rose at once

¹ Native Customs Reports, 1902; published by the Imperial Maritime Customs.

to Tls. 61,262. Later it was found possible further to reduce the staff, which now consists of seventy employes reasonably paid and comfortably housed.

The condition which existed at Santuao in 1901 still exists where the office remains under Chinese administration.

The revenue derived from the Native Customs previous to 1902 was a pretty constant quantity. A certain minimum amount was expected from a station and this amount was rarely exceeded, the surplus collected being retained for office expenses. The total amount expected from all stations in 1818 was Tls. 4,272,502, — at the present rate of exchange, \$2,777,126. This amount included the original tax and the additional charges that had become legalized. How far it fell short of the total collected can be estimated from the report of Mr. Carey just quoted. If we assume that no more than one-seventh was reported, as in the case of Santuao, the total exacted must have amounted to Tls. 29,000,000. That Santuao was no exception to the general rule is shown by reports from other ports. Tientsin, for instance, in 1900 remitted Tls. 70,000 to Peking, but under foreign supervision this sum in 1906 had grown to be Tls. 1,195,015.76.

Generally speaking the tariff at the time it was fixed represented about three per cent ad valorem. In some instances it still remains an ad valorem tax at this rate. In most cases it has been converted into a specific charge per piece or per bale or per box.

One of the most important of the native customs stations is that of the Peking Octroi, which is classed with the Imperial Customs since its revenues are appropriated to the imperial household. Originally it collected duties at the city gates only. In recent

years it has extended the circle of its operations so as to cover all lines of trade within the vicinity of the capital, including the railway lines which were providing transit to Mongolia around the city. This office now has thirty branch stations, some of them as far as thirty-five miles from the city gates; and its receipts in 1908, as reported in the Peking Gazette, amounted to Tls. 314,964.47, equal to \$204,726.90.

Now that so many offices of the native customs have been taken over by the Imperial Maritime Customs, the receipts have of course been divided. The collections by those still under Chinese administration are unknown, but their contributions to the imperial exchequer may be set down as not less than Tls. 3,000,000 or \$1,950,000.

3. *The Native Customs administered by the Imperial Maritime Customs Service.* Nineteen principal stations and fifty-seven sub-stations of the Native Customs were taken over by the Imperial Maritime Customs in 1901. But at many of these the control is not complete. In some instances the smaller part of the collections is brought under the cognizance of the foreign officers. At several ports the greater number of branch offices lie outside the fifty-li limit, and are therefore entirely within the control of the old officials. Where the Imperial Maritime Customs has taken charge there is still no uniform tariff enforced, but the old tariffs have been simplified and various fees have been consolidated in one charge. Favoritism and corruption have been checked and the staff of each station has been reduced to a reasonable number and the salaries increased. The collections are more accurately accounted for than in the past, and the revenue therefore has been largely augmented. The total sum collected by these stations in 1909 was Tls. 3,144,335.63, or \$2,043,818.16.

III. LIKIN

Likin stations, which are sometimes confused with those of the native customs and sometimes with those of the octroi offices at the city gates, are distinct from both. They are barriers where duties are collected, sometimes on one article of merchandise, sometimes on all, in transit from one part of the empire to another. This tax is of recent origin, dating from the time of the Taiping Rebellion, 1852-66. The imperial government, being in need of funds for the suppression of the rebellion, levied a tax on merchandise in transit, which, as the word itself indicates, was to be at the rate of one per mille ad valorem. The rate soon advanced, however, and the tax, fostered by the usual methods of manipulating exchange and incorporating unauthorized fees, grew so heavy as to become a burden upon trade. When the Taiping Rebellion had been brought to an end its collection had become so well established as to have the authority of "old custom," than which there is nothing more powerful in China. Despite the complaints of foreign and native merchants and the efforts of the diplomatic representatives to get rid of them, the barriers still remain and the duties are still collected.

The rate may be said to average about two and one-half per cent ad valorem, but there is no uniformity in the levy. The amounts paid are largely the result of bargain between the merchant and the collector, and inasmuch as there is frequently a choice of routes by which goods may be sent from one district to another, the likin stations not infrequently compete with one another to secure the patronage of a merchant by offering him lower rates than those of the schedule. They are found in greater or lesser numbers in most

of the provinces, but they are especially numerous in the lower Yangtze Valley, and in the provinces of Kuangtung and Kuangsi, in the southern part of the empire. There are five stations on the water route between Shanghai and Soochow, a distance of but eighty miles. Morse mentions ¹ that along the Grand Canal between Hangchow and Chinkiang they are established at distances of about ten miles one from another, every alternate one collecting duties, the others preventing smuggling.

In the British treaty of Nanking (1842), it had been stipulated that merchants should be allowed to clear their goods, whether imports or exports, of all charges by the payment of one sum, which should not exceed a certain per cent of the tariff value of the goods. The treaty was signed, however, without stating what per cent of the tariff value should be paid. Complaints of excessive charges increased until 1858, when the Tientsin treaties provided that the charge should be as nearly as possible two and one-half per cent *ad valorem*, on payment of which the goods should be exempted from all further inland charges whatsoever.

Even this clear statement, however, was not sufficient to prevent the levy of other inland charges, even tho the goods had paid the commutation transit tax and were accompanied by a certificate to that effect. In the eyes of Chinese local officials, anxious to increase their own revenues, the provisions of the treaty referred only to foreign goods while owned by foreign merchants or still in their possession. The Japanese treaty of 1896, therefore, defined the practice still more carefully. The goods were to be exempted by payment of the transit tax from all internal taxes,

¹ Trade and Administration of the Chinese Empire, p. 107.



imposts, duties, likin charges, and exactions of every nature and kind whatsoever, no matter what the nationality of the owner or possessor.

Notwithstanding this provision, attempts are continually being made to increase the taxation of foreign goods imported into China and to add to the revenue from Chinese goods exported abroad. In some instances the friction between the foreign merchant and the Chinese official is due to misunderstanding. The production and consumption taxes and the octroi are all older than the likin and are levied for local purposes. The foreigner is apt to regard them all alike as likin. The Chinese officer is equally mistaken in supposing that the transit certificate clears the goods of transit duty only. Nevertheless this was the original intent of the treaties and the later provisions do not, perhaps, take sufficient account of the need of revenue for local uses.

The latest commercial treaties, the British of 1902, and the American of 1903, contain elaborate provisions for the abolition of "likin and all other transit duties throughout the empire," in return for which the United States agrees to allow a surtax in excess of the tariff rates both on imports and on exports. This arrangement is not in force until accepted by all the treaty powers, and up to the present but three nations have consented, Great Britain, Japan, and the United States.

The amount of the revenue derived from likin is unknown, and the actual collection from the people it is still more impossible to discover. The likin offices are entirely independent of the tax collecting agencies and do not publish any reports. Parker, and after him Morse,¹ estimate the total collection,

¹ Trade and Administration of the Chinese Empire, p. 110.

exclusive of likin on opium, at Tls. 34,382,260 or \$22,348,469. The likin on foreign opium is collected by the Imperial Maritime Customs at the port of entry. Formerly native opium was taxed at the likin barriers, but in recent years all taxes on the drug have been consolidated into one charge of 115 Kuping Tael for every 100 catties, i. e., \$0.56 a pound. This is collected by a special bureau, and with the gradual suppression of poppy culture throughout the empire the receipts from this source are year by year growing less.

The Provisional National Assembly, in its budget submitted in January, 1911, estimated the total likin revenue at Tls. 44,176,541, or \$28,714,752.

IV. THE SALT GABELLE

One of the most interesting forms of taxation in China, of very high antiquity, dating from the seventh century B.C., is the salt gabelle, commonly called the government salt monopoly. The term is inappropriate, since the government does not engage directly in the manufacture of salt, and, except in Szechuen, does not concern itself directly with its sale. It merely exercises strict control of manufacture, transport, and sale. Salt is manufactured along the coast from sea water, in Shansi and Mongolia from salt lakes, and in Szechuen from deep wells.

For the administration of the salt gabelle the empire is divided into eleven districts. Each district has its army of officials and guards. They prevent illicit manufacture and smuggling; and they see that licensed manufacturers and merchants pay the proper fees and taxes, that they buy and sell at authorized prices and distribute according to regulation within the per-

mitted areas. Each district, however, has its own methods of taxation and administration.

Along the sea-coast the proprietors of the salt lands are taxed on their acreage, as mentioned above in discussing the land tax. In addition a vat license is imposed. The salt is evaporated, by private enterprise but under official supervision, in vats in the sun or in pans over the fire, and is transported under guard to the government depots, where it pays storage until it is sold to licensed merchants at a price fixed by the government. The sales are taxed at a varying rate but generally about Tls. 4 to Tls. 6, *i. e.*, \$2.60 to \$3.90 per *yin*. A *yin* varies from 225 to 600 catties according to locality, *i. e.*, from 169 to 450 pounds.

The licensed merchant has paid a considerable sum for his license. In 1887, E. H. Parker,¹ writing upon this subject, reported the cost for the southern Huai region as having been formerly Tls. 4000 each, *i. e.* \$2600, but as reduced to Tls. 3600 or \$2,340. But certainly the licenses are worth a much larger sum today, for the number allotted to each province is limited, so that a few men control the salt supply of the whole province. Morse estimates that new issues now would command Tls. 10,000 to Tls. 12,000 each, or from \$6500 to \$7800.²

These merchants must take their turn in buying salt and these turns come only about once in two years. The license permits the purchase of a definite amount of salt. In the Hupeh district, according to Morse, this amount is fixed at 3,750 piculs.

The merchant transports the salt under official supervision to the provincial station at which he is allowed to sell, and there storage is paid again until

¹ Journal of China Branch of the Royal Asiatic Society, "Salt Revenue of China."

² Trade and Administration of the Chinese Empire, p. 102.

it passes into the hands of the retail dealer at a price which is fixed by the government. The retail dealer also must have a license, and he sells to the consumer at a rate which is again determined by the government. These prices have been increased in recent years to cover the increase in taxation. At present in Peking a catty (one and one-third pounds) of salt sells at retail for about \$0.03, that is about \$2.25 for 100 pounds. The original cost of this 100 pounds is estimated as not more than \$0.15. The remaining \$2.10 represents the cost of transportation, taxation, and the profit of the merchant. The total taxation may be set down as about \$1.75 per 100 pounds.

Von Rosthorn, in the *Journal of the China Branch of the Royal Asiatic Society* for 1892-93,¹ gives an interesting account of the salt administration of Szechuen, the westernmost province of China. Salt there is obtained by evaporating brine that is pumped up from deep wells. Other wells supply a natural gas which is used for heating the pans. It appears that various methods of taxation have been tried in Szechuen. The latest, which seems to give more satisfaction than those of earlier times, leaves production and ultimate sale to private enterprise. The government levies a tax on the wells. It also purchases the salt from the producer and transports it to depots for distribution, where it sells to the trade at a profit. In 1882 there were 8,830 salt wells in the province and 10 natural gas wells. 2,371,088 piculs of licensed salt were produced, besides a certain amount known as the surplus salt, which was distributed under special regulations. The revenue derived from the sale of licensed salt was Tls. 2,000,000 per annum. Inasmuch as 15 per cent of the total weight was allowed for

¹ "The Salt Administration of Szechuen."

waste, the salt that paid the tax amounted to but little more than two million piculs, so that we may say the tax in round numbers amounted to Tls. 1.00 a picul, that is \$0.49 per 100 pounds. In addition to this, however, the salt is taxed again in crossing the borders into adjoining provinces. On passing down the Yangtze into Hupeh Province, for instance, it pays altogether 18 cash a catty, or an additional \$0.49 per 100 pounds.

The surplus salt is sold in small quantities, not more than 80 catties to any one person, under strict regulations. It is again subject to a variety of taxation, such as the license fee of about \$10 or \$12 for every 133½ pounds, the duty, *likin*, examination, and other fees.

The actual amounts collected, whether along the coast or inland, are unknown. There are many different scales used and much manipulation of exchange, and there are no accurate statistics of production. In 1800 the output was reported as about twenty million piculs. It is today certainly not less than twenty-five millions, *i. e.*, 3,300,000,000 pounds, which if uniformly taxed at \$1.75 per 100 pounds would yield a revenue of \$57,750,000 per annum. Mr. Morse estimates the total collection from the people at Tls. 81,000,000, *i. e.*, \$52,650,000, of which Tls. 64,000,000, or \$41,600,000, is taxation. The fixed annual remittance to Peking is put down as no more than Tls. 13,000,000. The Provisional National Assembly in its budget for 1911 reckoned salt and tea taxes together as Tls. 47,621,920, *i. e.*, \$30,954,248.

The amount of revenue derivable from this source is of interest to foreign governments, since it is one of the items pledged for the payment of the so-called

"Boxer" indemnity. Since the revolution now in progress has already caused China to default on payments due on the indemnity, it is not improbable that the creditor nations may have to take over the administration of the salt gabelle.

V. THE GRAIN TRIBUTE

Another unusual form of taxation remains to be noticed, the tribute or contribution in kind, a survival from primitive times. The contributions consist of silks, porcelain, tea, wood, copper, and many other articles rare and precious. But the most important is the contribution of grain. This is levied on eight of the provinces. Four of these for half a century or more have been allowed to commute the tax for a money payment.

The grain tribute consists chiefly of rice, but includes also wheat, barley, and beans. It is set aside for the support of the banner-men, who are located as garrisons in various parts of the empire. So long as they are carried on the rolls as in active service they receive pensions in money and in grain. The *Ta Ch'ing Hui Tien* gives the amounts of these pensions, which are graded according to the rank of the individual. An imperial prince of the first order receives Tls. 10,000, or \$6500 per annum, and 20,400 bushels of rice. Common soldiers of the lowest rank receive Tls. 2 to Tls. 4, or \$1.30 to \$2.00 per month, together with a correspondingly small allowance of rice.¹

The grain tribute is levied on the provinces rather than on individuals. Apparently the local authorities distribute the burden among the individual land-owners. The clue to the rates per *mou* is found in

¹ It is estimated that the pensions of the Peking garrison, including the princes, amount to Tls. 7,000,000 per annum, i. e., \$4,550,000.

edicts contained in the "Complete Book of the Grain Tribute," which fix the levy upon certain foreshore lands reclaimed from the rivers. In one instance in Anhui the tribute was fixed at .24 *lou* per *mou*, i. e., one-fifth of a peck per acre. In a case quoted by Morse the original levy was .0069 picul per *mou*, in another .00596 picul per *mou*. But in the first case the grain was priced at 6000 cash a picul and in the second at 7000. And in both the levy was increased by various additions, until the tax was twice as great as the original assessment in one case and in the other one and a half times as great; while if we commute the tax at the market rate of the grain, the sum demanded was not less than five or six times the original levy. In keeping with this treatment of the individuals the assessments upon the provinces have been gradually increased by various supplementary charges, such as commutation payments in lieu of matting to enclose the grain, poles, and other wood for the bins and the granaries, cost of transportation, and repairs to the transport boats.

The original assessment was 3,300,000 piculs, which a hundred years ago had already grown to be about 5,300,000 piculs. If we take it to be now not less than 6,000,000 piculs and convert it at 6000 cash a picul (as in one of the cases cited by Mr. Morse) and reduce the cash to taels at a fair rate, we shall find the value of the grain tribute to be not less than Tls. 21,000,000 or \$13,650,000 per annum. Morse himself estimates it at more than Tls. 25,000,000, i. e., \$16,250,000.

VI. MISCELLANEOUS TAXES

One curious source of revenue mentioned in the budget of 1911 is the sale of rank; not patents of nobility, but the right to wear an official button.

By this method it was estimated that Tls. 5,652,333, or \$3,661,016, would be raised in the year mentioned.

The tax on tea varies from province to province, but we may take that of Hupeh as fairly representative. A report of the Commissioner of Customs at Hankow in 1888 stated that the various taxes known there amounted altogether to about Haikuang Tls. 4.27 per picul, including the export duty. The total export of tea of all kinds in 1910 was 1,560,800 piculs. If we assume the average taxation to amount to Haikuang Tls. 4.00 per picul, the revenue from this source would amount to Tls. 6,243,200, or \$4,120,512.¹

Other sources of imperial revenue are the reed tax, which is levied upon the tall reeds grown on government lands and used for basket work and fuel, the fisheries tax, and mining royalties.

For local purposes taxes are levied sometimes upon the houses of a city according to size. Pawn shops and wine shops are licensed. The sale of opium and the permit to smoke it are also licensed. Transfers of real estate must pay a fee for registration amounting generally to 8 per cent of the selling price as recorded in the deed. Recently the last mentioned fees have been devoted to the support of the new school system.

In some cities there is a vehicular tax, ostensibly for the upkeep of the new streets which have been constructed. I have referred already to the octroi, and the production and consumption taxes levied for municipal purposes. These undoubtedly produce considerable revenue, but the amount is unknown.

Owing to the increased demand for funds occasioned by the reforms of the past ten years, new sources of revenue are being continually sought. Several times

¹ This does not of course include the revenue from tea consumed in China, the tax on which will average probably Tls. 1.50 a picul.

recently the attempt has been made to introduce a stamp tax, and the stamps indeed have been printed. Commercial documents of all sorts were to be subjected to a light impost. But the opposition encountered has up to the present prevented the enforcement of the decree.

Accepting the estimate of the Provisional Assembly and adding thereto the tea tax and revenues from sale of rank, which are not included in the Assembly's estimate, the miscellaneous taxes may be set down as Tls. 38,059,375, or \$24,738,594.

This inquiry into the fiscal system of China enables one to estimate the total amount of the imperial revenue as follows: —

Land and Grain Tax Tls.	48,000,000 =	\$31,200,000
Imperial Maritime Customs "	36,000,000 =	\$23,400,000
Native Customs administered by I. M. Customs	3,100,000 =	\$2,046,000
Native Customs administered by Chinese "	3,000,000 =	\$1,950,000
Likin	43,000,000 =	\$27,950,000
Salt Gabelle	57,000,000 =	\$37,050,000
Grain Tribute	21,000,000 =	\$13,650,000
Miscellaneous Taxes	38,000,000 =	\$24,700,000
Total	Tls. 249,100,000 =	\$161,946,000

There should be added the income from imperial property, which is set down in the budget as about Tls. 47,000,000, *i. e.* \$30,550,000, and the proceeds of loans, Tls. 3,560,000, or \$2,314,000, thus making a grand total of Tls. 283,210,000, equivalent to \$184,086,500. The Provisional National Assembly estimates the total at Tls. 301,910,296, and Morse sets it down as Tls. 284,154,000.

The provincial revenues were estimated in 1911 by the Ministry of Finance at Tls. 322,000,000.

It would scarcely be proper to close this survey without some reference to China's ability to meet its foreign obligations. The various foreign loans and the "Boxer" indemnity together total nearly £142,000,000, the charge on which for 1912 will amount to about £9,000,000. If we regard the revenue of China as amounting to £40,000,000, which is about the estimate of the Provincial National Assembly, there will be left but £31,000,000, for all the expenses of the Government, a sum which would seem totally inadequate for such a vast empire.

The Board of Finance estimated the available revenue at £39,513,975, and the necessary expenditure at £45,061,206, thus leaving a deficit of £5,547,231. The Provisional Assembly thereupon increased the estimate of revenue to Tls. 301,910,296, that is about £40,000,000, and cut down the proposed expenditure by Tls. 77,907,292, making them Tls. 298,448,365, thus securing a balance in favor of the Treasury of Tls. 3,461,931, the equivalent of £460,645.

These figures confirm the opinion expressed in the opening sentence of this paper, that one of China's greatest needs at present is a revision of her fiscal system. China is naturally a wealthy empire. Its resources are vast and largely undeveloped and its people are industrious and frugal. There is no good reason why it should not with ease meet every financial obligation. But the vast changes contemplated in the program of reform necessarily call for a great increase in expenditure, and this can only be met by a corresponding readjustment of the finances.

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REVIEWS

MOORE'S LAWS OF WAGES¹

It is with no little diffidence that I undertake a notice of Professor Moore's book. The mathematical tool is not at my command, and I can only accept with gratitude the results of its use by Professor Moore. Of his mastery of it there can be no doubt; nor can there be doubt of the high scholarly quality shown throughout this volume. Professor Moore brings to his task a wide acquaintance with the most difficult parts of the literature of economics and statistics, a full appreciation of its large problems, a judicial spirit, and a dignified style. He is one of the select few who are able to apply the methods of physical science to social phenomena, and has high hopes for the progress of economics under these methods. His book is intended to give examples of the results which may thus be reached. Regarding these results, as they impress a non-mathematical economist, I venture to say something.

The several chapters take up certain laws of wages, and their statistical confirmation. The topics may be divided into several groups: the relation of wages to the means of subsistence and the standard of living; the relation of wages to strikes and to large-scale production; and, most interesting of all in its bearing on economic principles, the relation of wages to the specific productivity of labor. This is not the order in which the subjects are arranged in the book, but is that in which it will be convenient to consider them here. Needless to say, in all of them Professor Moore recognizes the existence of two distinct problems. On the

¹ *Laws of Wages; an Essay in Statistical Economics.* By Henry Ludwell Moore, Professor of Political Economy in Columbia University. New York: The Macmillan Co. Pp. 196.

one hand, there is the question what sort of correlation in fact exists: how wages are found to vary with the cost of subsistence, or to be raised when there are strikes, or to be higher or lower as production is on a larger or smaller scale. On the other hand, there is the more fundamental question of the explanation of the correlation: whether the connection is one of cause and effect, or (say) of the action of a third cause on both the compared phenomena. On the first set of problems, the existence and extent of correlation, I can do no more, to repeat, than accept gratefully Professor Moore's skilful and lucid exposition. On the second set, I confess to some doubts and difficulties.

On the group of problems first considered in the book, — the relation of wages to the price of necessities and to the standard of living, — Professor Moore uses the French Report of 1893–97 on wages. Comparing the different departments of France, he finds that there is no such correlation between wages and the cost of subsistence as to indicate a close relation, still less a causal relation. But he does find a close correlation, tho “not so high as to justify the inference of a cause and effect relation” (page 176), between wages and the standard of living. The standard of living is measured by the ordinary *prix de pension*, or price of board and lodging, in the different departments. Professor Moore explains (in a footnote, p. 38) that the *prix de pension* absorbs 76 per cent of the wages of unskilled laborers, and “therefore represents with a high degree of accuracy the effort of the unskilled laborer to maintain a standard that varies from department to department.” I gather that he believes mere habituation, and insistence on better board and lodging, operate to bring about higher wages. It may be so; but possibly the connection runs the other way, — higher wages, due to other causes, may lead the laborer to spend more liberally on his *pension*. Local variations in wages are doubtless greater than economists have usually assumed, and little has been said about their causes. It would seem to be clear, however, that Professor Moore's method of inquiry throws no light on a

more fundamental relation between wages and the standard of living, — that which is connected with the movement of population. We might expect, for example, that the birthrate would decline if wages were below a given standard of living, and rise if they were above it. Perhaps, in a strict sense, this is the only causal connection between wages and the standard of living which could be considered permanent.

A second set of inquiries in the book relates to the influence on wages of labor organizations and strikes, and of large-scale production. On the former Professor Moore uses the United States Department of Labor's Report on Strikes and Lockouts (1906). He finds that strikes ordered by labor organizations are somewhat more likely to succeed than strikes not so ordered; that strength of organization goes with probability of success; and that the greater the duration of a strike, the less its probability of success. Professor Moore would be the last person to say that these were novel conclusions; we are none the less indebted for their exact and guarded formulation. On the other point, the relation of wages to large-scale production, the results are distinctly novel. On the basis of Italian statistics it is concluded that the larger establishments pay the higher wages, select the younger and more efficient laborers, give more employment and more continuous employment; and on the basis of French statistics, that their working day is shorter. These interesting generalizations unfortunately seem to rest on narrow data. Most of them are derived from an Italian investigation of 1905 on the employment of women in the textile industries of that country (excluding silk). We cannot be sure that the same results would be found in countries like England, Germany, the United States. One would much wish to ascertain whether the same correlations appeared in the more advanced countries.

We come finally to those parts of the book which have most interest for economic theory, — on the relation of wages to the productivity of labor. Professor Moore finds that the specific productivity theory is verified by his re-

sults. But the significance of these results depends very much on the sense in which one takes the theory. I confess that I had understood it in a different sense from that of Professor Moore; or rather, the difficult and disputable points seem to me different.

Every economist is familiar with the distinction between the causes that act on general wages and those that act on the wages of particular individuals or particular groups. As regards the former, we are still floundering; as regards the latter, we are on comparatively firm ground. As regards general wages, we have discarded the wages-fund doctrine and the residual-claimant doctrine, and we are now threshing out the specific-product doctrine. But on particular wages there never has been occasion to revise older theories to the same extent, and there is now an approach at least to a consensus of opinion. Adam Smith's teachings on the differences of wages are still useful as a starting point; Cairnes's doctrine of non-competing groups made clear the problem and the direction in which to look for its solution; the marginal principle supplies the key. Relative wages depend on the marginal efficiency of each several kind of labor; a conclusion which is in the nature of a corollary to the proposition that the exchange value of commodities and services depends on their marginal utility. One may use the phrases "marginal efficiency" or "marginal serviceableness" or "marginal productivity" or "specific productivity"; they mean essentially the same thing. A more efficient worker gets more than a less efficient. On all this we are agreed, and on the main lines of explanation.

But the statements that there is a separable product of labor, distinct from the product of capital, and that the general rate of wages depends on this specific product of labor, seem to involve different reasoning; and it is reasoning on which we are by no means agreed. Some of us believe that these propositions (taking them together) lead to reasoning in a circle. Such, for example, is the opinion of Professor Böhm-Bawerk; such seems to be that of Professor

Marshall.¹ These two things, at all events — particular wages and general wages — do not seem to be kept distinct with sufficient clearness in Professor Moore's pages. Most of his calculations and correlations on specific productivity relate to relative wages, and have no significance as regards general wages. In Chapter IV, he considers the distribution of ability and its effects on relative wages; and, in Chapter VI, the variation of wages with age and with the efficiency that depends on age. These are interesting and valuable discussions. But they have no probative force as regards the difficult and disputed problem, — how disentangle the product of labor in general from that of capital in general.

The only passages that bear on this disputed problem are in Chapter III; and even here they seem to me of doubtful pertinence. The data are the wages of coal miners in different regions of France. They are considered in three parts. In the first part, it is shown that, "in an industry in which labor plays the chief rôle," wages (in money) vary with the total product (in money). This may signify a mere monetary change; it is consistent with almost any theory of wages except the "iron law." In the second and third parts, it is maintained that the *share* of the product which goes to laborers becomes larger as there is increase in the proportion of capital (assumed to be indicated by amount of machine-power); and that, in different parts of France, the *share* of the laborers increases most rapidly where the relative amount of capital increases most rapidly. Both of these results, as is emphasized by the italics which I have used, relate to the share or proportion of product going to the laborers, not to wages per man. At the very outset (Introduction, p. 7) Professor Moore states the theory as one relating to "the share of the product that goes to the whole class of laborers in the form of general wages"; and

¹ See Böhm-Bawerk's article in this Journal for Feb. 1907, vol. xxi, p. 247. Marshall remarks that "illustrations of this kind [the diminution of output from successive increments of capital] cannot be made into a theory of interest, any more than into a theory of wages, without reasoning in a circle." *Principles of Economics*, 6th edition, p. 519. I have stated my own opinion in an article in this Journal for May, 1908, vol. xxii, p. 333.

to this form of the doctrine his illustrations and correlations are confined.

I had always supposed, however, that the specific productivity theory of distribution was concerned not with the proportions between total wages and total interest, but with the *rates* of wages and interest. Such seems to be the necessary implication of the reasoning on which it is based. When it is said that the addition of successive units of capital causes the specific product of capital to fall, the conclusion would seem to be one relating to the unit of capital and to the return per unit. The absolute amount going to capital may none the less rise, and the proportion of the total product going to capital may also rise. Notwithstanding a lowered rate of interest (assuming this to follow from a lowered return per unit), a large principal may secure a higher absolute amount of interest; and it may also secure a larger share of the product of industry. Similarly, when it is argued that an increase in the number of laborers (capital remaining the same) causes the specific product of labor to be less, it seems to be meant that *wages per man* become less; and, conversely, that *wages per man* become greater if there is diminution in the number of laborers as compared with capital.

I might hesitate to interpret the specific-product doctrine in this way were it not that the same interpretation appears in Professor Moore's own pages. He writes that Professor Clark has shown that "a reduction in the average amount of capital with which a laborer works" brings about "a fall in the general *rate* of wages" (p. 57; the italics are mine). And again, in the same paragraph, the "general *rate* of wages" is referred to, in an exposition of Professor Clark's views. Yet the next paragraph begins, "Our present query has this form: does fluctuation in the laborer's *relative share of product* vary directly with the fluctuation in the relative amount of machine power with which he works?" The italics are again mine; they point to my reasons for thinking that Professor Moore's figures relate to a problem different from that of the specific-product

doctrine. They are not inconsistent with that doctrine; but they do not seem to me to confirm it.

Quite apart from their theoretical bearings, Professor Moore's results on relative shares seem to me too good to be true. He notes that they rest on a "narrow statistical basis" (p. 66); and they are hardly in accord with familiar facts. No doubt it is true that capital increases in modern countries faster than the number of laborers; that capital per man becomes greater; that the rate of interest shows on the whole a slight tendency to decline; that wages per head show a tendency to rise. But all the indications are that the proportion of the total income which goes to capital is becoming greater, not less. If Professor Moore's figures were representative, they would show that the proportion is becoming less, not greater. Much more evidence than he brings is needed to prove that there is a tendency so inconsistent with what we observe on all sides.

The most significant part of all this reasoning is in its social bearings. Professor Moore concludes that "if a collectivist state is to have any degree of stability, the principles followed in the apportionment of labor and capital in production *and in the distribution of the product of industry* must be the same in the collectivist state as in the present industrial state" (page 191; the italics are mine). Possibly this can be proved as regards the distribution of income among workers of varying abilities. It raises questions, to be sure, about the necessity of giving high reward in order to induce the fullest exertion of ability, on which the socialist has some strong grounds for differing with Professor Moore. But in any case the reasoning bears only on the contributions of workers, not on those of all the "factors of production." In Professor Clark's own writings, there is not infrequently a smooth transition from the workers who contribute to the "factors" which contribute, — from human beings to capital and land; and there is a doctrine, more or less explicitly put forth, that the grounds which are supposed to make it just that a worker should be paid in proportion to his product make it just that the owner

of a factor of production should also be paid in proportion to its "product." The same statement, or at least implication, appears in Professor Moore's closing pages. His discussion is brief, and I am not sure precisely how far and in what form he would deduce this social consequence. It seems to me an unwarranted one, even granting the specific-productivity premise.¹ If we are to prove the "solidarity of industry" and the inevitableness of such distribution of wealth as appears in our modern societies, we must use reasoning more effective than this. Possibly the specific-product theory, stated with care, serves to explain distribution under the system of private property; the differences between those who accept the theory and those who do not may be at bottom only on matters of phraseology. But at the very best it can serve only as an analysis of the existing situation, not as a defense. My most serious quarrel with it is in that sort of justification of things as they are which Professor Moore's closing paragraphs seem to endorse.

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¹ As was long ago pointed out by Professor Carver, when reviewing Professor Clark's *Distribution of Wealth*, in this Journal, vol. xv, p. 579.

NORDAU'S INTERPRETATION OF HISTORY¹

Since the publication of his famous work on Degeneration² Max Nordau has been recognized as the most merciless of our modern critics. His reputation as a disillusionizer will be greatly enhanced, in the minds of the discriminating, by the work before us. Yet, from the very nature of the case, a great many will be unable to see what the author is driving at. In his chapter on the Psychological Premises of History, he describes the mind of the average cultivated man as follows: "A stream of words and combinations pour in upon him from language, intercourse, school, newspapers, and books, and some of them remain in his memory as formulae. If he is provided with a good supply of such formulae, and can produce one on any occasion that requires it, he passes in his own estimation, and that of his fellows, as a cultivated man. But his repetition of formulae is mere psittacism, and his word knowledge has nothing to do with real knowledge."³ Such a man will not find many of his favorite formulae repeated in the work before us. In the physical and experimental sciences, where the student comes into contact with objective reality, this kind of word knowledge is speedily dissipated. Unfortunately, in the moral and social sciences, and particularly in the writing of history and its interpretation, and most markedly of all in the study of law, there is no natural touchstone by which real knowledge can be separated from word knowledge. The result is that they who continue glibly repeating formulae can still pass as scholars. Such scholars will not be able to understand a man who looks through the formulae, and describes succinctly and with particularity the realities which lie behind.

¹ *The Interpretation of History*, by Max Nordau; translated from the German by M. A. Hamilton. N. Y., Moffat, Yard & Co., 1911. Pp. 419. \$2.00.

² *Degeneration*, by Max Nordau. N. Y., D. Appleton & Co., 1895.

³ P. 265.

The author describes history in the narrow and conventional sense as that class of past events in which we choose or happen to be interested from time to time, and which we describe in terms with which we have become familiar in our own social surroundings. What is called historical science, on the other hand, is the mere technique of historical method. It consists of a system of rules and methods for finding, sifting, and weighing the fragmentary evidences upon which the history of a given period is to be constructed. It occupies the same relation to history as microscopy to biology or telescoping to astronomy. Historical science, thus described, is not history, tho it is a means by which we may discover the real subject matter of history. This subject matter is that interminable series of adjustments by which the human species, or some branch of it, has fitted itself into its environment. To quote Nordau himself: "History in the widest sense is the sum of the episodes of the human struggle for existence."¹ Concerning the old puzzle, — does man make history or does nature make history through man, — the author has little to say beyond a mild ridicule of those modern historians who affect to despise the honest old chroniclers "who faithfully devote the same space to recording dearths, earthquakes, and floods, hailstorms, unusual cold in winter or heat in summer, and the appearance of comets, that they gave to wars, coronations and the death of princes, thus assigning the same importance to events resulting from the operation of the human will and those originating in the blind chance over which man has no control. . . . The modesty of the honest old chroniclers is more consonant with the true function of the historian than the lofty confidence of those modern adepts who arrogate to themselves the decision as to what is and what is not important in the wide stream of the processes of the universe, of nature, and of human life."²

However, if history books are written to sell or to be read, and if readers are more interested in coronations, July massacres, and military campaigns than in records of tem-

¹ P. 13.² P. 16.

perature, earthquakes and hailstorms, obviously the historian would be unwise not to discriminate and decide what was, *for his purpose*, important or unimportant. Readers are undoubtedly more interested in the doings of men than in the records of the weather bureau or of the seismograph. Who ever heard of a novel without men and women in it as the chief actors? The historian is as much subject to the interests of the reader as is the novelist. But even in the portrayal of the actions of men and women, whether by the historian or the novelist, there must be discrimination, and the writer must "arrogate to himself the decision as to what is and what is not important." Even the most pronounced realist in the realm of fiction, like the historian, "as a matter of fact, selected by subjective inclination, with reference to an end subjectively conceived, a few aspects of actuality which he then linked together as suited him and interpreted in accordance with his own idea." Thus "History, at the moment when it thinks itself most objective, is merely naturalistic fiction, merely 'history through the medium of temperament.'"

The author's chapters on The Customary Philosophy of History, on The Anthropomorphic View of History, are strong and pungent, but may be criticised as attempts to slay the dead. The chapter on Man and Nature smacks of Buckle but emphasizes the Darwinian ideas of adaptation, both active and passive. That on Society and the Individual very effectually punctures the bubbles of those social psychologists who are trying to prove that society is the reality and the individual only an abstraction. That on The Question of Progress is, in some respects, the most penetrating of all. Progress, in any absolute sense, is, according to the author, logically impossible. What we call progress is, in every essential particular, like a change of fashions. Having ceased to care for the things we once cared for, and having learned to care for things which we formerly did not care for, we now proceed to get the things we now care for. When we succeed, we call it progress. Are the things we now care for better than the things we

formerly cared for? Of course we think so, otherwise we should not have changed our minds.

But is there no real test? To the reviewer, it seems that there is a test which will determine whether or not we are changing for the better or the worse. That is the test of survival. If the things we now care for help us in the struggle for existence and enable us to survive better than did the things we formerly cared for, then there is real progress; otherwise there is not. At any rate, the world will pass more and more into the hands of those people whose desires, tastes, appetites, and activities give them greater power to resist the attacks of enemies, invisible as well as visible, greater control over the forces of nature, and greater power to multiply and to spread. This test rests upon something besides opinion, or likes and dislikes. However much we may prefer the things we are now achieving to the things which were formerly achieved, and however much we may therefore be convinced that we are progressing, if the things which we are now achieving are actually reducing our power of resistance, our power of control or conquest of the forces of nature, then we are not progressing but degenerating. The question of progress remains therefore something deeper than a mere change of fashion, or a matter of likes and dislikes.

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NOTES AND MEMORANDA

PRICE AND RENT

Rent may adequately be defined as an income or return received because of the existence and control of some economic privilege or desirable market opportunity which is not susceptible of depreciation in the sense of physical wear and tear or deterioration. According to this definition, land rent is only one form of rent. On the other hand, all returns from special or monopoly privileges may be classified as rent. The presence or absence of physical deterioration is then the distinguishing feature which makes possible the tracing of a fairly distinct line of demarkation between interest and rent. From this viewpoint, the concept land is narrowed until it becomes mere extent or space which furnishes support or standing room; soil is capital. In agriculture, the soil sustains the same relation to land that the factory building does in manufacture. The return from land, which of course is not subject to physical deterioration, is rent; but the return from the soil, which is subject to physical deterioration, should be classified as interest. A franchise is a monopoly privilege not susceptible of deterioration from the engineer's or the physicist's viewpoint; and, therefore, any return received because of the control of a franchise is a rental return. In short, rents are due to the ownership of market opportunities of various sorts, to the ownership of some unique and special privilege. Rent is never a return received because of the use of tangible capital which is subject to physical wear and tear and deterioration; such a return is interest.

It will, however, doubtless be urged that there is as yet no monopoly in land ownership; and, consequently, land

rents and monopoly returns are two different and distinct kinds of income which should not be placed together in the same category. That the generally accepted technical definition of monopoly will, up to the present time, exclude the ownership of land from the category of monopoly, must be granted. But even the most enthusiastic theorist of the *laissez faire* school will admit, altho perhaps reluctantly, that the ownership of a particular parcel of land is an exclusive privilege. No two parcels of land are exactly alike in all respects. Therefore, to own land is to possess a partial monopoly and to be favored by certain unique and special privileges. Differential land rent is due to the absence of perfect competition between different parcels of land.

The return from the operation of mines does not readily admit of classification. Minerals are taken out of the mine and the mine, unlike a waterfall which is automatically renewed, depreciates in value; but the minerals are not replaceable as is a worn-out machine, the chemical constituents of the soil, or the water of the waterfall. On the other hand, there is a return from mining operations which is not due to some intangible privilege, to mere location or to the use of capital goods capable of deterioration. The mineral wealth which is taken from the mine is an irreplaceable "natural" gift. And consequently the surplus from mining operations over and above the expense of carrying on the industry (including depreciation and interest upon the capital actually invested in mining equipment) may logically be considered as a rental return. The income from the ownership of mineral wealth or of a waterfall is called rent, while that from the ownership of soil is termed interest. The item of replacement is here made the distinguishing characteristic. A good soil can be maintained year after year only by replacing the chemical elements which are required for plant growth; it is in reality a peculiar and unique form of machinery. But on the other hand, as indicated above, mineral wealth is not replaceable; and the water in the case of the waterfall is replaced automatically.

Rents are of two kinds: (1) differential rents measured from an intensive or an extensive margin; and (2) intensive marginal rents which are more commonly designated as monopoly gains, forced gains, returns from special privileges, or returns from "pulls."¹ Both varieties of rent are due to the absence of perfect competition among the three factors of production, — land, labor, and capital, — and to the presence of special privileges or unique opportunities of some sort.

Land — that is, extent, space, standing room — is needed in connection with all human activities. And differential rent, which is a measure of desirability, appears because of the existence of a demand for various products or goods coupled with the presence of land of varying grades of desirability. The exact amount of differential rent depends upon both the demand for the products of land and upon the amount and nature of the supply of land. With a given land supply, present or potential, and no change in industrial methods, differential rents increase and decrease as the demand for products varies.

If perfect competition as regards labor and capital existed and labor and capital flowed with perfect freedom from one industry to another, the intensive (or extensive) margin would be the same in all industries and occupations. Differential land rents would in that hypothetical case absorb all surplus over and above the payments made to labor and capital on marginal or no-rent lands. Any obstruction to perfect competition — monopoly power, custom, organization of labor, artificial scarcity, forced gains, "pulls," and the like — whether the result of prevision, forethought, business acumen, or chance which interferes with perfect competition and the hypothetical frictionless flow of capital and of labor halts the investment of capital or the employment of labor, or both, in a given industry at some point above the normal margin. As a consequence, the supply — the flow of products — in the industry is diminished, and

¹ For a more detailed examination of intensive marginal rent, see article by the writer in the *Quarterly Journal of Economics*, August, 1906, pp. 596-607.

prices may be raised above the point which would have obtained under free competition. The margin in the industry is abnormal; and intensive marginal rents appear. This form of rent enters price as do interest and wages. The amount of the intensive marginal rent is simply a measure of the monopoly power or "pull" exerted. The investment of capital and the employment of labor in the industry are modified, the supply of the article is restricted, and the price is increased.

It has been urged that the view here presented is fallacious. "It might as well be argued that because a poor farmer may not work his land with sufficient capital, — and whose intensive margin is consequently higher than his better equipped neighbor's — intra-marginal rent appears upon his land, and enters the price of his produce."¹ This objection overlooks the possibility and the probability of the competition of more efficient farmers. Unless the inefficient farmer were a monopolist, he could not fix the price of his products so as to give rise to intensive marginal rents. If, for example, of a dozen competing grocers in a town, one were inefficient, the latter could not fix prices. On the contrary, his profits and personal wages would be reduced below that received by the eleven other grocers. Since the inefficient tradesman could not limit the supply or fix the price of the articles which he offered for sale, no intensive margin would appear except in so far as competition was otherwise obstructed. The case of the inefficient farmer is quite similar. Intensive marginal rent is a measure of monopoly power, not of inefficiency.

As long as variations in the value of the market opportunity of different parcels of land exist, — that is, as long as competition in regard to this one factor in production is not perfect, — differential rents will arise. Intensive marginal rents on the contrary appear when labor and capital are not perfectly mobile, when the movement of labor and capital from one industry to another, or from one place to another, is impeded.

¹ Haney, "Rent and Price; 'Alternate Use' and 'Scarcity Value.'" *Quarterly Journal of Economics*, vol. xxv, p. 137.

From the standpoint of the consumer, intensive marginal rents (monopoly or forced gains) enter price as do wages and interest. From the point of view of the entrepreneur intensive marginal rent is a surplus, — an extra gain over and above that obtained in a competitive business. On the other hand, the entrepreneur considers a differential rent to be a cost (expense); but under competitive conditions the consumer finds that the price of an article is equal in the long run to the expenses of production on no-rent land or on the intensive margin. But the location of this margin is determined by the interaction of demand and supply.

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THE EFFECT OF FREE WOOL IN THE NORTHWEST, 1893-96

The recent report of the Tariff Board on Wool and Woolens and the discussion on a revision of this schedule have turned attention again to the problem of the future of sheep growing in the United States. It is commonly admitted that there will always be a certain number of sheep raised as a by-product of farming. Farmers are recognizing that the benefits of keeping a few head of sheep, to consume the waste pasture and fertilize the soil, are greater than they had supposed. As the price of mutton rises, it will become more and more profitable to increase the number of sheep on the farms. There are also a few limited areas, of no value for agriculture, which may be devoted to sheep raising. Such is the case with certain arid tracts in Wyoming and Idaho. But the number of sheep which these areas will support is insignificant in comparison with the number now raised where sheep growing is carried on as an independent industry. The problem before the public is whether any changes in the tariff or other forces will so alter conditions that sheep raising will no longer continue as a separate business.

Some light has been thrown on this problem by the free wool episode of 1894 to 1897. During each of these years the number of sheep in the northwest states increased. The conclusion has been drawn from this fact that the industry was in such a prosperous condition that it could thrive in spite of the tariff. Professor Chester W. Wright, in his *Wool-Growing and the Tariff*, expresses this view when he says: "All of these states ended the period of combined industrial depression and free wool with more sheep than they had at the beginning — a fact which cannot but lead one to raise the question how necessary the protective tariff is for the wool-growers of this section."¹

It is my opinion, however, that the increase in the flocks during this period has been misinterpreted and that there are

¹ *Wool-Growing and the Tariff*, p. 306.

no grounds for believing that the industry was flourishing under free wool. In fact the opposite was true.

The free wool period was not only short, but expected to be short. From the very passage of the free wool act in 1894, sheep growers looked forward, with hope of a Republican victory in 1896. The defeat of the Democrats in many states in 1894 strengthened their hope. It was confidently expected that, should the Republicans win the election of 1896, former conditions would be restored. Prices of sheep during the period were cut in half. Ewes which easily brought \$3.50 in 1892 could not be sold for \$2.00 in 1894. To sell at such prices meant ruin to most owners. If a man was not forced by his creditors to sell, there was but one thing to do — to let the flocks continue to grow normally and to hold over as many sheep as possible, in hope of a Republican victory in 1896. This is what was done, and this explains the continued growth in the number of sheep in the northwest states, despite the depressed conditions. If the Republicans had not won in 1896 and if there had been no hope of renewed protection, there would have been a very sudden reduction in the number of sheep in the western states.

To confirm this view, reference may be made to the statistics on the shipments of sheep out of one state. They show that the usual number were not shipped during the free wool years, and that there was a sudden increase thereafter. We have the figures of shipments out of Montana.¹

1893	315,000	1896	600,000
1894	300,000	1897	727,592
1895	280,000	1898	583,320

In 1896 the shipments doubled, and they continued large during the following three years. The explanation of the large shipment in 1896 lies in the fact that prices quickly rose after the election; and on account of financial troubles it was necessary to realize on the stock as soon as possible. The small shipments in 1893-95 explain the increase in

¹ Montana Bureau of Agriculture, Labor, Industry, and Publicity. Reports, 1894 to 1899.

number of sheep on the range, — an increase which probably would not have continued had the period of free wool been prolonged.

Persons on the ground state emphatically that the conditions of 1893-95 were not those of prosperity. To quote the words of Senator Warren: "The fate of the ranch wool-grower during this period can be given in four words: 'they all went broke.'" On account of the low price of sheep, those who for any reason were forced to sell lost everything. It was only by holding over till protection was renewed that the average sheepman was able to maintain himself. His capital and credit had been strained to the utmost in trying to hold his flocks over, so that by the end of the period his borrowing power at the bank had been used to the limit. A failure to regain protection would have brought bankruptcy. Some interesting stories are told of the bets which men made a few days before the election of 1896, by taking an option on flocks of sheep at a price midway between the free wool price of sheep and the normal price.

Such were the results of free wool during a period when grazing land was much less valuable than it is at present. But with the coming of the dry land farmer, the range has continually been more confined. It is generally admitted that sheep cannot be profitably raised in large flocks on land worth more than \$5 per acre. For the past four or five years the process of "cleaning up" has been going on in Montana. Men have been selling out their large flocks as fast as possible. It is probable that the outlook for a lower tariff has had little to do with this process. The sheepman is rapidly giving way to the dry land farmer, who will make it possible to dispose with profit of a large part of the range in a much more certain fashion than any act of Congress ever can. For the West, this change to a more intensive utilization of the land is one of the signs of thickening population and economic progress.

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THE COMMODITY CLAUSE IN RAILROAD
LEGISLATION

The "commodity clause" of the Hepburn amendments to the Interstate Commerce Law, because of its unfortunate ambiguity, has already twice been before the Supreme Court. The first interpretation was given in a decision concerning the Delaware and Hudson Railroad, handed down in May, 1909.¹ This affirmed the constitutionality of the statute at all points; but, at the same time, emasculated it most effectually. For, in order to harmonize the opinion with prior ones holding that ownership of stock in a corporation did not constitute legal ownership of the property of the company, it was necessarily held that a railroad by owning the share capital of a coal company did not thereby possess an interest, direct or indirect, in the coal mined. Moreover, a railroad which was the legal owner of coal at the mine might escape the interdiction of the law by selling the coal before transportation began. A handy means of evading the intent of the law could not have been more plainly indicated.

An attempt to prohibit specifically stock ownership in coal mines by railroads, — thus meeting in part the situation arising out of the foregoing decision, — was made in connection with the Mann-Elkins Act in 1910; but to no avail. The Senate, by a vote of 25 to 31, rejected an amendment proposed by Senator Bailey of Texas to prohibit stock ownership so clearly "that not even a judge of the Supreme Court could fail to understand it." The negative votes were all cast by the so-called "regular" Republicans. In the meantime, the clause had been carried to the Supreme Court for further interpretation in a suit against the Lehigh Valley Railroad.² The government in the lower court had already been defeated in an attempt to raise questions of fact as to the pecuniary interest of the road in the coal

¹ *United States v. Delaware and Hudson Railroad, etc.*; 213 U. S., 257.

² 300 U. S., 257; decided April, 1911.

transported, irrespective of the technicalities as to legal ownership. The outcome in this case was more satisfactory. The Circuit Court was held to have erred in ruling out these considerations. It was unanimously decided by the Supreme Court that it was in violation of the law to use stock ownership for the purpose of destroying the entity of a mining corporation, while still so "commingling" its affairs in administration with the affairs of the railroad as to make the two corporations virtually one. This was a distinct gain for the government. It necessitated a compliance with the law in good faith. Upon the basis of this decision the Department of Justice instituted a new action against the Lehigh Valley Road; which was promptly met, however, by a readjustment of its corporate affairs.

The economic results under the "commodity clause" have been quite different from those doubtless anticipated by Congress. A salutary separation of coal mining from transportation is being effected; but in the case of the anthracite properties at least, in such manner as to hold out small hope of any direct benefit to the general public. Absolute alienation of their coal properties by the railroads was subject to two difficulties. Some roads, like the Reading and the Lehigh Valley, had heavy issues of bonds outstanding, based upon the security, jointly, of both the railroad and the coal properties. The two could not readily be separated without retirement of these general mortgage bonds. In the second place, the operating relations between the railroads and their subsidiary coal companies had for years been fixed upon the general principle of concentrating all profit from the two conjoined transactions of mining and carriage upon the transportation service alone. In other words, freight rates were established at so high a percentage of the selling price of coal that mining was necessarily conducted at a nominal profit if any. This made no difference to the carriers, owning both mines and roads; but it had the desired effect of making it impossible for coal operators, independent of the railroads, to engage in the business. Without a modification of this plan the

coal companies, already separately organized for the business by most of the railroads, could hardly be disposed of to advantage, either to the general public or even to their own shareholders. The only coal companies controlled by railroads which independently showed a considerable book-keeping profit were those owned by the Jersey Central and the Delaware and Hudson roads. The Lehigh Valley Coal Company had never paid dividends to its railroad corporation, but had contented itself with providing a very profitable tonnage. The Philadelphia and Reading Coal and Iron Company had likewise never been allowed to show a book-keeping profit more than sufficient to meet the interest upon its bonds and to provide for a sinking fund against exhaustion of its assets under ground.

Despite these practical obstacles, a general legal separation of hard-coal mining from transportation is in a fair way to be effected. The Delaware, Lackawanna, and Western in 1909 was the first to act. With no joint mortgages and a charter right to mine coal directly, it merely organized a separate corporation, the Delaware, Lackawanna and Western Coal Company. The capital stock of this concern was then distributed gratis as a special dividend among its own shareholders.¹ This coal company at once purchased all of the railroad's coal in stock, leased its mining appurtenances, and agreed henceforth to purchase all of its coal at the mine mouth for 65 per cent of the tidewater price. The railroad continued to mine coal; but thus disposed of it before accepting it again for carriage. The Delaware and Hudson likewise entered into a contract with a newly organized coal company, which after June, 1909, agreed to purchase all of its future output. The Lehigh Valley Railroad rearrangement was more complicated. It already had a coal company of the same name, the capital stock of which was pledged under its general railroad mortgage. Ownership was thus indissoluble. So the *Lehigh Valley Coal Sales Company* was organized, in January, 1912. Its capital of \$10,000,000 was provided by the railroad, which declared

¹ *Political Science Quarterly*, vol. xxvi, 1911, p. 102.

a stock dividend to its own shareholders, sufficient in amount to enable them to subscribe to the capital of the new concern. This company then, like the others above mentioned, thereupon agreed to purchase all the coal mined by the railroad's subsidiary coal corporation.

At this writing great speculative interest attaches to the probable plan to be adopted by the Reading. Its intricate organization,¹ whereby both the railroad and the coal companies are owned by a purely finance or holding company, renders the problem of dissociation unique. A large volume of joint bonds are outstanding, with complicated provisions for sinking funds. The railroad actually owns no coal lands. The coal company, independently, is not profitable under existing traffic arrangements. Its operating ratio in 1911 was 98.7 per cent. It is "land poor"; carrying vast reserves of coal purchased by bond issues. The only asset sufficiently profitable by itself to make it attractive as a gift to shareholders is the subsidiary coal company of the Jersey Central Railroad, which is itself controlled by means of stock ownership. The formation of a third coal sales company, whose stock could be distributed to shareholders of the Reading, as was done by the Lehigh Valley, would seem to be the only feasible plan.

But is there not danger, financially, for these and other railroads that they may place this lucrative traffic in jeopardy by thus distributing their coal properties among shareholders by means of stock dividends? While, for a time, community of interest between railroad and coal mine may be assured through lodgment of stock ownership of both companies in the same persons, is it not likely that the two may become widely dissociated in the course of time? This contingency has been guarded against by an ingenious provision. The contracts providing for purchase and shipment of coal by the coal sales companies are terminable at the will of the railroad. So that if conflict of interest should arise in future, through transfers of stock of the coal sales company

¹ *Intercorporate Relations of Railways, Special Report, Int. Com. Com., 1908, p. 24.*

to outsiders, the carriers would be free to cancel the arrangement; create another corporation; distribute its shares among their stockholders once more; and thereafter go on as before. Manifold and ingenious, indeed, are the devices of the law for purposes of circumvention!

Whether the "commodity clause" is to bring about a further separation of transportation from activities of carriers in other lines of business remains to be seen. It was doubtless intended to have a general application. Some roads, other than those in the anthracite coal fields, have taken steps to set off their subsidiary concerns. The Louisville and Nashville, for example, has distributed among its stockholders all the shares of the Louisville Properties Company. This is a Kentucky corporation to which the railroad had transferred its holdings of coal and other lands. It was expected at the time that its capital stock of \$600,000 would be worth par. The Union Pacific has done even better. It voluntarily reconveyed to the United States considerable tracts of coal lands, where title had been called in question in the course of investigations as to such railroad ownership. While there has been no sign of the Pennsylvania Railroad disposing of its investments in the Cambria and Pennsylvania Steel Companies, made prior to 1906, it is clear that the interdiction of the law will render any further outside operations of this sort difficult if not impossible.

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THE NEW BRITISH LAW ON RAILROAD REPORTS

In the article on Control of Railroad Accounts in Leading European Countries published in this Journal, May, 1910, reference was made to the appointment, in 1906, of a Special Commission of the British Board of Trade to consider changes in the required forms of accounts and statistical returns of railroads. This commission reported in May, 1909.¹ As a result of its findings, a law was enacted by Parliament in December, 1911 (to go into effect January 1, 1913), prescribing a number of changes and additions in the official returns filed by the railroads with the Board of Trade.

The law is a distinct advance toward publicity of railroad accounts in Great Britain. In addition to requiring the filing of a copy of the accounts with the Board of Trade, it provides that copies should be sent on request to every share- and debenture-holder of the company. Persons who are not share-holders may have the privilege of inspecting the accounts of any railroad on the payment of a fee of one shilling for each inspection of each railroad account. The provisions of the law may be altered by the Board of Trade after due notification and hearings; but Parliamentary confirmation is required when the proposed changes are protested by railroads representing in the aggregate one-third of the total railroad capitalization.

In accordance with the recommendation of the Special Commission, annual reports are to be substituted for the prevailing semi-annual returns. These annual reports are to be divided into two parts, one containing the financial schedules and accounts, the other containing the statistical returns. This separation is in accord with the Commission's recommendation. Because of the disagreement among

¹ "Accounts and Statistical Returns Rendered by Railway Companies": Report of the Committee appointed by the Board of Trade (1909), cd. 4697.

English railroad officials concerning the utility of " mileage " and " tonnage " costs and the like, the schedules of statistical returns are much less complete than those published by the American railroads.

From the standpoint of publicity, the most important provision of the new law is the requirement of more elaborate statements of revenue receipts and expenditures. There are ten schedules dealing with revenues and expenses; whereas under the old law there were but three. The form of these accounts plainly shows the influence of the system devised by the Interstate Commerce Commission. Maintenance expenses are separated and subdivided. Moreover, in each account, wages are shown separately from material costs.

The accounts relating to capitalization and capital expenditures are likewise stated in greater detail. A somewhat novel feature is a schedule calling for an estimate of proposed expenditures on capital account; another, also new, calls for details on proposed methods of obtaining the required funds. In view of the controversies between the American railroads and the Interstate Commerce Commission, arising from the latter's accounting rulings, the operation of the English law should be followed with interest.

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LUMBER GRADING IN THE PACIFIC
NORTHWEST¹

AN interesting phase of the organization of trade is to be found in the systems of grading that have been adopted by the lumber industry in the great timber producing sections of America. In the Pacific Northwest the system is a growth of the last ten years; and the complete unanimity on the part of the various mills has not yet been obtained, an enormous quantity of lumber is annually shipped only after the issuance of a sworn certificate of grade. It is mainly to the cargo trade that the system applies. Recently, however, some attention has been given to rail shipments.

The need of a system of grading was not keenly felt in the pioneering stages of the industry. In the early days the lumber was commonly loaded on the ships as it came from the mills. In some instances yards were established at the port of destination, and from these the lumber was distributed. In other cases it was simply discharged from the vessels, sorted into lots, and sold at auction. Such a system could not, of course, long continue without some modification, due to the knowledge that the manufacturers acquired as to the demands of the different markets. Later, when the reputation of the Douglas Fir, or, as it is sometimes called, the Oregon Pine, was established, purchasers would send orders to the mills, stating what sort of lumber they required. For some time the business was, in the main, done directly between the mills and their distant customers; but when the needs of the markets had become well understood and a considerable business had been built up, the "broker," with headquarters at San Francisco, made his appearance.

¹ For most of the facts here given the author wishes to acknowledge his indebtedness to President E. G. Ames and Secretary Fred W. Alexander, of the Pacific Lumber Inspection Bureau, and Secretary Frederick D. Becker, of the Pacific Coast Shippers' Association.

The lumber broker is not always what the name implies. It is said by some of the manufacturers that he is commonly a speculator, who makes his contracts with the mills at a time when prices are low, hoping to profit by a rise, tho sometimes ostensibly doing a commission business. However this may be, one of the chief results of his activity is to intensify competition. The customer who buys lumber for his own use naturally wishes to get it on the most favorable terms possible; and the broker is a specialist in buying, and can more largely devote his energies to it.

Where no system of grading is adopted for a commodity that varies considerably in quality, competition is likely to put upon the seller great pressure to provide goods somewhat better than his contract, strictly interpreted, would call for. This pressure seems to have been keenly felt by the lumber mills. The new mills, in particular, according to President Ames, would sometimes establish in this way a reputation that they found very difficult to maintain; and such competition was injurious to the older ones. A more important reason, perhaps, why competition should strongly take this form is due to the nature of the lumber trade. In this section of the country the lumber is commonly put on the ships while it is still more or less green; the distances to be travelled are great; the means of transportation are slow; and considerable variations of temperature, humidity, and the like are experienced. Under such circumstances there is likely to be some deterioration of the product. Moreover, the time that must elapse during the voyage is sufficiently great to permit important changes in the market, and the purchaser may regret his bargain by the time the shipment reaches its destination. In such cases a claim that the lumber is not so good as that ordered is likely to be filed; and as it is difficult, if not impossible, for the mill to check up the shipment, a reply to such a claim is not easy.

To meet this situation the manufacturers wished to have some system whereby the sale could be regarded as completed when the lumber was put on board the ship, no re-

sponsibility being assumed for what might happen on the voyage. Accordingly there was formed, in 1903, as a branch of the Pacific Coast Lumber Manufacturers' Association, an organization known as the Pacific Lumber Inspection Bureau; the work of this bureau being in the hands of a committee representing the various districts interested. In 1907 the Bureau was incorporated as a separate business organization, its shareholders being the various mills that wish to make use of its services. During the summer of 1911 there was a merger, under the name of the West Coast Lumber Manufacturers' Association, of the three important organizations that had represented the general interests of the trade in this section of the country — the Pacific Coast, the Oregon and Washington, and the Southwestern Washington Lumber Manufacturers' Associations — and the Pacific Lumber Inspection Bureau took over the work of the inspection bureau of the two associations last named. Tho there are still a few mills that have declined to become members of the Bureau, it now includes all but two of the largest cargo mills within its territory, which comprehends the western parts of British Columbia, Washington, and Oregon. Among its members are a number of mills that are not connected with the West Coast Lumber Manufacturers' Association.

The work of the Bureau is what its name implies — the inspection of lumber. It publishes schedules of grades and dimensions, for export and domestic trade, and lists of prices to serve as standards of relative values and bases for the quotation of prices. Members of the Bureau are not, however, bound to make use of these schedules, as the Bureau will inspect according to any standard grading rules, or even according to the terms of a special contract.

The territory of the Bureau is divided into seven districts, one in British Columbia, four in Washington, and two in Oregon. Each of these is under the care of a district supervisor, who is subject to the chief supervisor. The actual work of inspection is done by local inspectors, or, as they are sometimes called, surveyors or tallymen. When the

work is completed the inspector provides a sworn certificate of grade, which is countersigned by the district supervisor, presented to the shipper, and by him sent to the consignee. Until recently the inspectors were employees of the separate mills, but were licensed by the Bureau. It was the policy of the Bureau to keep a careful record of the name, residence, habits, and experience of the inspectors, and to refuse the countersignature of the supervisor to the certificates of any on whom it felt that it could not rely. Recently, however, the inspectors in a majority of the districts have been made employees of the Bureau, looking to it for their positions and their remuneration. In these cases the Bureau itself collects from the mills the payment for the work of inspection. It will probably not be long before this system is applied to all the districts.

A discussion of lumber inspection in this section of the country would be incomplete without some reference to the Pacific Coast Inspection Bureau, an organization which must not be confused with the Pacific Lumber Inspection Bureau, the former being a department of the Pacific Coast Shippers' Association. While there is some rivalry between the two bureaus, their work is, in the main, of a different character. The Pacific Coast Inspection Bureau is concerned primarily with rail shipments. While it will, upon request, inspect the lumber before it is put on the car (or the ship) and issue a certificate of grade, its chief function is to inspect the lumber after it has reached the purchaser in cases where there is complaint that it is not up to grade. The chief market for Washington lumber is in the Middle West, and the headquarters of this bureau are at Minnesota Transfer, in St. Paul. From this point salaried inspectors cover a large territory in Minnesota and nearby states. Salaried inspectors are available also in Washington, Idaho, Montana, and the Dakotas. In addition there are deputy inspectors, employed on a contingent basis, at a considerable number of points in the United States and Canada, reaching places as far distant as Regina, Sask., and Boston, Mass., where the amount of work to be done is not sufficient to warrant

the employment of an official inspector. In some cases visits are made to the yards of the purchasers, but more commonly samples are sent to the inspectors, whose reports are made on the basis of these samples. If as much as five per cent of the lumber is found to be off-grade the cost of inspection is borne by the shipper; otherwise it is borne by the complainant.

A number of different schedules of grades are published; and until a careful examination is made it is likely to be thought there are several different systems. In the first place, there are four kinds of wood — fir, cedar, spruce, and hemlock — and a different schedule applies to each of these. Separate schedules are published for each of the three classes of shipments — export, domestic (chiefly the cargo trade to California ports), and rail. The key to the situation is to be found in a rather elaborate schedule, covering the different kinds of wood, published by the Associated Bureau of Grades, which represented the three organizations recently united under the name of the West Coast Lumber Manufacturers' Association. This bureau does not provide certificates, its work being described as chiefly educational. Its schedules are very generally taken as the standard. The grades as defined by the others do not differ materially in character from those of the Associated Bureau; but some of the schedules contain grades that others do not. The differences are to be attributed chiefly to the different purposes for which the schedules are issued. The demands of the export market, for example, differ somewhat from those of the California market. In the former case the difficulties of the voyage make it necessary to select lumber which, even tho not thoroly seasoned, is not so green as some of that which is shipped to California.

The chief considerations governing the determination of grade are the way in which the lumber is cut and the defects it contains. Very often, tho not always, a grade is designated by the purpose for which it is intended. As examples may be mentioned "deck plank," "railroad ties," and "flooring no. 1." Such terms as "clears,"

"selects," "merchantable," and "common" are applied only to rough lumber. Among the defects considered are knots, pitch pockets, wane, rot.

The number of grades is far too great to permit consideration in detail. A few illustrations, taken from Export List G of the Pacific Lumber Inspection Bureau, which applies only to fir, will perhaps be sufficient to show the nature of the grading.

Merchantable: This grade shall consist of sound, strong lumber, free from shakes, large, loose, or rotten knots, and defects that materially impair its strength; well manufactured and suitable for substantial constructional purposes. Will allow slight variations in sawing, sound knots, pitch pockets and sap on corners, $\frac{1}{2}$ the width and $\frac{1}{2}$ the thickness or its equivalent. Defects in all cases to be considered in connection with the size of the piece and its general quality. In timber 10×10 inches and over sap shall not be considered a defect. Discoloration through exposure to the elements, other than black sap, shall not be deemed a defect excluding lumber from this grade, if otherwise conforming to Merchantable grade.

Fir Flooring No. 1. Edge grain, shall be free from all defects and well manufactured. Angle of grain not more than 45 degrees from vertical.

Stepping No. 2. This grade shall show edge grain on face to extent of not less than $\frac{1}{2}$ its width and conform generally to grade of "Selects."

The amount of lumber annually inspected by the Pacific Lumber Inspection Bureau has increased greatly, not only as an absolute quantity, but in proportion to the amount shipped and reported to it.¹ In 1904, out of a total of 1,051,201,335 feet, board measure, 405,462,497 feet were inspected. In 1910, the last year for which the figures are available, out of 1,574,119,519 feet, 1,023,884,273 feet were inspected. The inspection of lumber for rail shipments was begun only about two years ago, and the amount inspected is still very small as compared with the total. In 1910 only 5,354,144 feet were inspected. The figures for 1911 are expected to exceed 30,000,000.

¹ I am informed that the amounts reported cover, as far as the Bureau is able to ascertain, the total shipments made.

The system of inspection was established by the manufacturers for their own benefit; but it would appear that, properly and fairly managed, it should be a benefit to all concerned. It is not to be expected that there should be no evils connected with it. Whether or not it should be regarded as an evil that the risk of deterioration during a long voyage must be borne by the buyers is a matter about which it is impossible to speak with confidence. In so far as the system makes contracts clear and definite it would seem to be distinctly good. Of course it is necessary that the certificates of grade be thoroly reliable. The men in charge of the Pacific Lumber Inspection Bureau seem to realize this; and considerable emphasis is laid upon the claim that the certificates are widely accepted as honest and impartial. Some time ago representation on the inspection committee was offered to the Merchants' Exchange of San Francisco; but, for reasons which do not appear, it was not accepted. No matter how fairly the work is done, there are always opportunities for misunderstandings; and rulings that are made by the manufacturers alone are likely to be regarded as interested and arbitrary. It may be doubted, however, whether it is practicable to have an organization representing all parties, especially as regards the export trade. The possibility of government inspection seems to have been thought of at the time the Bureau was organized, but the fact that the competitive territory lies in two states and a Canadian province rendered this plan likewise impracticable. The system of inspection, however, seems to be fairly well established, and it is not improbable that, if serious dissatisfaction should arise, some method will be found by which the work can be done by a more representative organization or an independent one.

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RICARDO'S CRITICISMS OF ADAM SMITH

SUMMARY

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THE object of the following dissertation is to examine Ricardo's criticisms of the economic doctrines of Adam Smith as set forth in the "Wealth of Nations," with a view to ascertaining to what extent those two celebrated economists actually differed in their conception and treatment of economic phenomena. The criticisms are first examined separately, the opinions of both writers on each particular point of dispute are briefly stated, and an attempt is made to account for the conflict of opinion. Finally the results thus obtained are considered and an endeavor made to formulate the principles underlying them.

The references to the "Wealth of Nations" are to the edition of that work edited by MacCulloch, 1863. Those to the "Principles of Political Economy and Taxation," to Professor Gonner's edition, 1903.

I. THE NATURE OF VALUE

Adam Smith, as he himself suggests, was strangely conscious of the "extremely abstracted nature" of value, and his exhortation to patience and attention with which he ends the fourth chapter of the first book of his "Enquiry into the Nature and Causes of the Wealth of Nations" is neither misplaced nor uncalled for.

Paradoxical tho it may seem, it is not, however, value *qua* value which is so difficult to apprehend; rather is it "quantity of labor" — the "source" of value — that is enshrouded in mystery and proves so illusive to the understanding.

"The value of any commodity to the person who possesses it," writes Smith, "and who means not to use or consume it himself, but to exchange it for other commodities, is equal to the quantity of labor which it enables him to purchase or command."¹

This statement is simple if "quantity of labor" were endowed with some distinctive connotation.

The term is therefore explained and it is evident that it conveyed to Smith ideas similar to those which it conveys to the modern economist. "Quantity of labor" is synonymous with "toil," "trouble" — in a word with "the disutility of labor."

Unfortunately, "it is often difficult to ascertain the proportion between two different² quantities of

¹ Wealth of Nations, Book I, chap. v, p. 13.

² Wealth of Nations, Book I, chap. v, p. 14.

labor"; moreover "every commodity is more frequently exchanged for, and thereby compared with, other commodities than with labor." Further "the greater part of people understand better what is meant by a quantity of a particular commodity than by a quantity of labor."

"Hence it comes to pass that the exchangeable value of every commodity is more frequently estimated by the quantity of money than by the quantity either of labor or of any other commodity, which can be had in exchange for it."¹

But gold, the metal of the English monetary standard, fluctuates in value according as it is more or less difficult to obtain from the mines: wherefore it cannot be an accurate measure of the value of other commodities.

So far the issue is clear.

- I. The value of a commodity is equal to the quantity of labor which it can purchase.
- II. Labor is an unsuitable medium in which to express value. Gold is more frequently used than any other commodity for that purpose, tho it is not an invariable measure.

At this point Adam Smith states a somewhat startling proposition. "Equal quantities of labor at all times and places may be said to be of equal value to the laborer. The price which he (the laborer) pays must always be the same whatever may be the quantity of goods which he receives in return for it."² The pain, the trouble, in a word the disutility, involved in the work of say an agricultural laborer in the year 1600 is identical with that of the average Hodge in

¹ *Wealth of Nations*, Book I, Chap. v, p. 14.

² *Wealth of Nations*, Book I, chap. v, p. 15.

1776 or 1908. In general terms the proposition states that the disutility of labor (in any given grade) is constant. This remarkable assertion furnishes an excellent subject for debate; but so many and diverse are the conditions which determine the disutility of labor that it is well-nigh impossible to treat it with anything approaching scientific accuracy.

On this assumption, however, Smith lays it down that labor is an invariable standard of value. It is the "real" price of commodities; money is their nominal price only.

Adam Smith here turns from the laborer's view of labor, what may be termed the subjective view, to the employer's view of labor, or what may be termed the objective view. "Tho equal quantities of labor are always of equal value to the laborer, yet to the person who employs him, they appear sometimes to be of greater and sometimes of smaller value."¹ It is not, however, that labor alters in value: variations take place in the value of commodities. Because the laborer always "gives up" the same quantity of labor, when he gets much in return commodities are cheap, when little they are dear. To the laborer (and he is the all-important person to Smith), the value of labor is constant; that of other things varies. On the other hand, because the employer always obtains an equal quantity of labor from a given man in a given grade, when he gives little in return, labor is cheap, when much, labor is dear. To the employer, the value of labor varies, while other things remain constant.

The subject is further complicated by the introductions of a "nominal" and "real" price of labor "in this popular sense." The "real" price of labor consists in the necessities and conveniences of life

¹ *Wealth of Nations*, Book I, chap. v, p. 15.

which are given for it; its "nominal" price in the quantity of money.

Value, then, according to Adam Smith has four different connotations according as it is considered from different points of view.

I. *From the Laborer's Standpoint:* —

- A. The value of a commodity is equal to the quantity of labor which it "embodies."

II. *From the Employer's (or possessor's) Standpoint:* —

The value of a commodity is equal to —

- A. The quantity of labor for which it will exchange.
- B. The necessities and conveniences of life for which it will exchange.
- C. The amount of money for which it will exchange.

Smith unfortunately is not consistent in his use of these definitions. By "value" he sometimes means "real" value (I, A); sometimes "nominal value" (II, C); and he frequently confuses the quantity of labor "realized" in a commodity (I, A) with the quantity of labor that commodity will purchase in the market (II, A).

Ricardo's treatment of labor in relation to value, tho highly abstract, is much more definite, much more consistent.

Granted the possession of utility, every commodity has a "real" and an "exchange" value.

The "real" value of a commodity is equal to or is determined by, the quantity of labor, direct and indirect, "embodied" in it.

The "exchange" value of a commodity, except in the case of that which is the subject of a monopoly, is determined by its cost of production, *i. e.*, the ratio

of exchange of commodities is regulated by the amount of labor realized in them.

Labor according to this view obviously cannot have a "real" value, nor therefore, strictly speaking, an exchange value. Ricardo, however, does ascribe a value to labor. The value of labor is equal to the "*real*" value of the conveniences and necessities consumed in its maintenance.

On this view of value and labor Ricardo bases all his subsequent speculation, and he adheres to it with great pertinacity.

Both Smith and Ricardo are at one in regarding labor as the "source" ¹ of value, tho the latter is more accurate in taking cognizance of the economic effort exerted by indirect labor or capital. Ricardo, however, criticises Smith on five points. He maintains in opposition to Smith:—

- A. That labor is not a standard measure of value.
- B. That corn also varies in value and cannot be a standard measure.
- C. That the term "riches" is not synonymous with "value."
- D. That labor rises and falls in value not according as a greater or lesser quantity of the necessities and conveniences of life are apportioned to labor, but according as a greater or less "real" value as realized in economic wealth is thus apportioned.
- E. That a rise in the price of labor is not uniformly followed by a rise in the price of commodities.

¹ See Ricardo's Works, edited by MacCulloch, p. 461.

A. *Labor as a Measure of Value*

With regard to labor as a measure of value, it ought to be noted that Smith nowhere definitely states that the quantity of labor realized in a commodity is equal to the quantity of labor that commodity will purchase in the market. When he regarded labor as the real standard of value, he did so from the point of view of the laborer. He was looking at labor subjectively. "Sometimes," says Ricardo, "he (Adam Smith) speaks of corn, at other times of labor, as a standard measure, *not the quantity of labor bestowed on the production of any object*, but the quantity which it can command in the market."¹ Now it is just "this quantity of labor bestowed on the production of any object" that is Smith's standard measure. Because generally speaking for an average baker, it requires a given quantity of labor, say x , to produce a loaf of bread, no matter whether that loaf is sold for 3*d.* or 100*d.*, it is always of the same "real" value. Even if it were kept a week and became so stale as to be quite useless, it would still embody a quantity of labor and be of the same real price, tho its nominal price would have fallen to zero owing to absence of demand. In other words, "real" value (I, A, above) would have remained constant; the other values (II, A, B, and C) would have ceased to exist.

This, we take it, is all Smith really meant when he spoke of labor being a measure of value. He quite failed to see that value is essentially a social and not an individualistic conception,² and that relatively to a theory of value, the subjective view of labor is of little importance.

¹ *Principles*, p. 8.

² See Seligman's *Principles of Economics*, chap. xiii, p. 199.

This is not, however, the place to criticize Smith's theories in the light of modern science. Suffice it, then, to say that when Smith was specifically considering "labor" as an invariable measure of value, he did not attach to that term the meaning implied by Ricardo. Unfortunately, as has been already observed, Smith was very inconsistent in his use of the term value, and in later portions of his great work he does confound the quantity of labor realized in a commodity with the quantity of labor it will purchase in the market. In so far, then, as Smith makes this mistake, Ricardo's criticism is just and accurate.

B. *Corn as a Measure of Value*

Because a quantity of corn will not necessarily purchase the same quantity of labor as it embodies, corn equally with labor cannot be an invariable standard of value. "Equal quantities of corn will at distant times" says Smith, "be more nearly of the same 'real value,' or enable the possessor to purchase or command more nearly the same quantity of the labor of other people" — but "even equal quantities of corn will not do it exactly."¹

Corn is not, then, a perfect standard even in the opinion of Smith. But it so nearly approaches thereto that in the "Wealth of Nations" it is very frequently assumed to be a perfect standard of value.

Smith obviously underestimated the divergence of corn from a standard — because a given amount of it "always feeds the same number of people." The only cause of divergence according to Adam Smith is to be found in the different conditions through which society passes in its progress to opulence or decadence,

¹ *Wealth of Nations*, Book I, chap. 5, p. 16.

and even then such divergence is not on account of a greater or lesser quantity of labor being necessary to the production of a given quantity of corn, but because of a greater or lesser quantity of corn being apportioned to labor. This peculiar view of the value of corn is always uppermost in Smith's mind and frequently taints his reasoning. In particular it modified unduly his opinions concerning rent and the effects of bounties on exportation.

Ricardo in emphasizing the fact that corn is subject to the same forces that produce variations in the value of other commodities, and that it must, therefore, vary in its own value, pointed out Smith's inconsistency, and corrected his bad logic in placing corn in a category by itself despite its possessing all the characteristics of an ordinary commodity.

C. *Value and Riches*

Smith's inconsistency in his use of the term "value" sometimes results in his confusing that term with "riches." Commodities possess great value where there is either scarcity or comparative difficulty in production. Riches imply plenty and ease in production. A reduction in value is therefore quite compatible with an increase of riches.

Adam Smith, in so far as he failed to distinguish in the applications of his own definitions of value, must, as a necessary consequence, have sometimes confused value and riches.

Again, Smith's "value" sometimes means "total utility." Neither economist had any conception of utility as the term is now understood in economic discussion and inquiry. To Smith it meant usefulness;

Ricardo, capacity to satisfy man's more pressing
ls. Much less did either realize the doctrine of

marginal utility, and the relation between marginal utility and marginal cost, tho Ricardo did see that it was production carried on under the most disadvantageous circumstances that regulated the value of commodities. Still it can scarcely be contended that Smith did not, in his own mind, distinguish between economic value and the more general interpretation of wealth in the sense of riches. So elementary and fundamental a conception could not have altogether escaped him. But, as has been remarked, he was lax and unscientific in his use of terms, more particularly when the context, as in his later discussions, is sufficiently clear to reveal quite naturally and unmistakably the point to which he wished to draw the attention of his readers. On the other hand, Ricardo did not make adequate allowance for the difference between his own abstract theory of "real" value and the theories of Smith.

D. "*Real*" Wages: Alterations in the Wage-rate

Ricardo's theory of remuneration led him to ascribe a quite different connotation to a "rise" or a "fall" in the wages of labor from that adopted by Smith.

To the former a "rise" or "fall" in wages meant more or less *real value* as realized in necessities and conveniences: to the mind of the latter the expressions conveyed one meaning and one only, *viz.*, more or less of the necessities and conveniences of life.

An alteration in wages, therefore, which in Ricardo would be described as a rise, might in Smith appear as a fall if owing to greater difficulty in production, less necessities and conveniences represented a much greater value than formerly. Moreover both wage earners and profit earners might receive a greater quantity of riches, while at the same time the wage-

rate might have decreased and the profit rate increased, or *vice versa*.

Where, then, there is apparently a difference of opinion between the two economists regarding movements in wages it is generally only apparent and not real. Both agreed that the "nominal" wages of labor consisted in the amount of money the laborer received. But while Ricardo (who turned his face to the abstract treatment of economic phenomena, and regarded the problems of distribution as being essentially concerned with rates) considered the real wages of labor to be the proportion of *real value*, as realized in commodities, which the nominal wages of labor enabled the laborer to purchase; Adam Smith (who, as the object of his great work would suggest, concentrated his attention on the more obvious conditions of mankind) regarded "real" wages as being simply and solely the actual amount of necessities and conveniences over which the nominal wages of labor gave the laborer power. Ricardo did not observe this important difference in definition and so argues as if the term "real wages" had the same connotation in the "Wealth of Nations" as he ascribed to it in his "Principles."

E. *Alterations in the Wage-Rate in Relation to Price*

According to Ricardo the prices of all commodities can rise only by reason of a fall in the value of the circulating medium. The main cause of variation in the value of any single commodity, however, is to be found in the changing quantities of labor, direct and indirect, which that commodity from time to time "realizes." In other words a commodity can only permanently rise or fall in exchange value relatively to other commodities by reason of an increase or decrease in the real value of that commodity.

It follows, therefore, that, other things being equal, if the nominal wages of labor rise and a greater real value is appropriated by the laborer, since no greater quantity of labor is exerted in production, the prices of commodities remain as they were before the alteration in wages. Hence, the same real value being produced, if a greater amount is given to labor a correspondingly smaller amount remains for the owners of capital. In other words, when wages rise profits fall, and only in so far as this latter circumstance affects the supply of capital (or indirect labor) will the price of commodities rise or fall. Fundamentally then, in the theory of Ricardo, variations in the rates of remuneration do not in themselves affect price.

According to Smith the "natural" price of a commodity was made up of a "natural" rate of wages, a "natural" rate of profits and a "natural" rate of rent.¹ If, therefore, the amount paid to labor increased, price tended to be increased by a corresponding amount. Smith did not realize the connection between profits and wages, and tho he speaks of a "rate" of profits and a "rate" of wages, it is doubtful whether he quite comprehended the full import of his own terminology. Consequently he did not fully understand that the rates of profits and wages are complementary the one to the other; that as the one rises the other falls by the same amount. True, in Smith, a rise in the wages of labor is attended by a fall in profits. But this latter phenomenon only arises indirectly through the former bringing about a more intensified competition among capitalists, whilst in Ricardo the fall in profits is inevitable and simultaneous with the rise in wages.

¹ This latter doctrine of natural value is plainly incompatible with Smith's former doctrine of value based on labor (see below).

II. THE PRODUCTIVITY OF DIFFERENT KINDS OF LABOR

Tho Adam Smith did not accept the whole of the Physiocratic doctrine of the extreme importance of Agriculture, he did believe, as his opinions on the value of corn testify, that agriculture was, for certain peculiar reasons, the most profitable of employments. Those peculiar reasons centre round the fact that in agricultural pursuits nature works along with man; in manufacture "nature does nothing."

Adam Smith, it is plain, did not realize the exact nature of economic labor in spite of the importance which he attached to it. He did not see that labor, as is so clearly demonstrated by J. S. Mill, consists in moving things, in submitting them to the forces of nature, and that natural forces are at the service of, and are utilized by, the manufacturer as well as by the agriculturist. Further, economic wealth conveyed to his mind the idea of matter in a particular form; he quite failed to see that the process of production is not completed until commodities are also in a particular place at a particular time, — in short, that economic effort is engaged in producing utilities.

Again, the phenomenon of growth as manifested in agriculture seemed to have no counterpart in manufacture. Without discussing the difficult biological conception of growth, it is sufficient in order to refute Smith's contention, to show that the economic labor of the farmer is in essence identical with that of the factory hand. Both are engaged in submitting matter to the forces of nature. True, those forces are different in the two occupations; nevertheless they are the same in the sense that the process of production consists in bringing matter and nature into contact.

Ricardo, tho he did not probe the subject so deeply as Mill, was alive to the inaccuracy of Smith's statement, and in differing from the latter on this point brings sufficient evidence forward to justify his criticism.

Still an early surveyor of the field of economic phenomena as it presented itself to the economist in the middle of the eighteenth century might, we suggest, be likely to exaggerate, as Smith did, the assistance given by nature to the agriculturist in his labor.

In the first place, to the cursory eye it does appear that nature labors far more than man in the production of raw produce. Man prepares the ground and sows the seed; but nature gives the increase. Between seedtime and harvest man does little or nothing. Moreover a manufacturer does not turn out any more matter in the shape of finished goods than he received in the form of raw produce. As has been observed there is no phenomenon in manufacture quite analogous to that of growth in agriculture. And we are of the opinion that in the passage under discussion, it is this conception of "growth" that Adam Smith wished to emphasize. Elsewhere¹ he is more pointed and unmistakably confirms this view. On the other hand, it is equally tenable that Smith's opinions were tainted by his classical learning and his contact with the physiocrats.

In the second place it would not appear so obvious to Smith that nature works in manufacture. In the evidence which Ricardo brings forward in contradiction

¹ *Wealth of Nations*, Book V, chap. i, p. 313. "Tho a husbandman should be employed in an expedition, provided it begins after seedtime and ends before harvest, the interruption of his business will not always occasion any considerable diminution of his revenue. Without the intervention of his labor, nature does herself the greater part of the work which remains to be done. But the moment that an artificer, a smith, a carpenter, or a weaver quits his work-house, the sole source of his revenue is completely dried up. Nature does nothing for him. He does all for himself."

of Smith's assertion, mention is made of the steam engine. But steam of course was not generally applied in industry till some years after the publication of the "Wealth of Nations." In the middle of the eighteenth century man did work directly on matter and not, as in Ricardo's time, indirectly by regulating nature's forces.

In this connection it might be pointed out that Smith also regarded the work of soldiers, servants, and the like, as "unproductive" in character, on the ground that their wages were paid out of revenue and not out of capital. Since Ricardo held the same opinion, he does not criticize this teaching, equally erroneous tho it be.

III. RENT

A. *The Rent of Land*

Adam Smith did see, tho not with great clearness, that rent "entered into the price of commodities in a different way from wages and profits. High or low wages and profits," he says, "are the causes of high or low price; high or low rent is the effect of it. It is because high or low wages and profits must be paid in order to bring a particular commodity to market, that its price is high or low. But it is because its price is high or low, a great deal more or very little more or no more than what is sufficient to pay those wages and profits, that it affords a high rent, or a low rent, or no rent at all."¹

From this quotation it is apparent that Smith had some idea of the true nature of rent. In discussing the rent of mines he enunciates the "whole principle" of rent, to the satisfaction even of his keen critic.²

¹ *Wealth of Nations*, Book I, chap. xi, p. 67.

² *Ricardo's Principles*, p. 316.

It is, however, extremely doubtful whether Adam Smith had any real conception of the marginal use of land or of capital applied in either agriculture or manufacture. Tho he vaguely felt that price regulates rent and not rent price, he did not clearly see why it was so. The differential nature of rent escaped him. Had it been otherwise he would not have argued that the rent of land is in proportion to its absolute and not to its relative fertility. Nor would he have contended that corn lands always afford rent had he perceived that it is production carried on under the most unfavorable circumstances that regulates the price both of corn and all commodities. In his treatment of the rent of land it is unquestionable that Smith was led astray by his conception of the stable value of corn. Moreover he entirely overlooked the fact that agricultural production is sooner or later carried on under the action of the law of diminishing return.

That corn lands always afford rent Ricardo curtly denies. On the contrary he maintains that there is in every country land of such a quality that it cannot yield a produce more than sufficiently valuable to replace the stock employed upon it together with the profits ordinary and usual in that country. But setting that contention aside he rightly claims that "it is the same thing if there be *any capital* employed in Great Britain on land which yields only the return of stock, with its ordinary profits, whether it be employed on old or on new land."¹ This by a theoretical argument he judges to be the case. To say that capital is applied in agriculture up to the margin is to state a truism. A most unenterprising farmer would be he who did not use as much capital as he profitably could in the cultivation of his lands.

¹ Principles, p. 314.

Ricardo proceeds to discuss Smith's distinction between the law which regulates the rent of land and that which regulates the rent of mines. Whereas in the one case rent is in proportion to the relative fertility of the mine, in the other case, says Smith, it is in proportion to the absolute fertility of the earth. Ricardo shows, however, that even if all land paid rent, the difference in amount paid by the best land from that paid by the worst land would be in proportion to their relative and not to their absolute fertility. And this is quite true for fertility itself is a relative term.¹

With regard to the rent of mines Ricardo disputes Smith's assertion that the most fertile mine regulates the price of coal in any given neighborhood, contending, on the contrary, that the least fertile source of produce, as in the case of land, regulates price. The difference here between the two economists is really very slight. Adam Smith did hold that the price of coal was practically identical with the cost of production in the least fertile mine actually being worked,² whilst Ricardo would scarcely have disputed the influence of the supply from the richer mines in determining which mine was to be the marginal mine.³ The truth appears to be that the product of the larger and more fertile mine does influence supply very considerably and therefore affects price. At the same time cost of production in the least fertile mine may rightly be claimed to be the index of price at any given time.

It ought further to be remembered that a portion of the payment tendered for the use of a mine is made

¹ "There is no absolute measure of the richness or fertility of the land," Marshall's *Principles*, vol. i, Book IV, chap. iii, p. 157.

² *Wealth of Nations*, Book I, chap. xi, p. 77.

³ *Principles*, p. 317.

on account of the depreciation in the value of the land that ensues from mining operations. This fact both economists neglect.

Again, Ricardo criticizes Smith on the point as to whether the rent of the landlord would be increased by a diminished cost of production. Adam Smith, failing to perceive the application of the doctrine of the margin, — that rent can only be affected by influencing marginal production, — claims that under the specified change, the proportion set aside for rent would rise. Ricardo admits this if regard be had to the permanent and ultimate results, but that the temporary and immediate effect would be a great fall in rent. He argues that population would increase, that resort would have to be had to inferior land, and ultimately price and rent would rise. But, emphasizing the fact that rent varies according to relative and not absolute fertility, he claims it would immediately fall by any innovation that led to a diminished cost of production.¹

Hence he concludes that, generally speaking, the interests of the landlords are at variance with those of the consumer and the manufacturer. Adam Smith expresses the contrary opinion through confusing a high value of money with a low value of corn. Smith maintains that if, owing to importation, the value of corn fell, tho the landlord would get less money in rent, that lesser quantity would purchase a greater number of commodities and a greater quantity of labor than before. Their real wealth, he affirms, would remain the same. This statement, of course, is incorrect and is another instance of Smith's habit of

¹ This, of course, is true, providing, as Ricardo assumes, the improvement is general, i. e., that it affects all agricultural land. See Marshall's *Principles*, Append. L., p. 835.

regarding the value of corn as a standard. Ricardo's contention that an abundance or scarcity of the precious metals affects all prices alike, whereas an increase or decrease in the value of corn affects only the relative value of corn, is a perfectly valid one.

Ricardo's criticisms of Smith on rent may then be attributed to the following circumstances.

In the first place Smith had no fixed conception of price being regulated by that production which is undertaken under the most disadvantageous circumstances, and that differences in rent therefore arise on account of differences in the conditions under which production is carried on. Hence he contended that all corn lands pay rent. He did not understand that the doctrine of the margin also applies to the employment of *capital* in production, and that land itself may be regarded as a particular form of capital. Ricardo had attained to this knowledge. His theory of rent was important in that it proved that rent did not form a component part of price. He eliminated rent from his theory of value. To Smith there was a "natural" rate of rent just as there was a natural rate of profits and wages, and this "natural rate" of rent formed part of natural value. In other words, as has been noted, Smith really made no distinction in his economic reasoning between marginal and intra-marginal production.

Secondly, unlike Ricardo, Smith did not recognize the action of the law of diminishing return in agriculture. Hence he did not perceive that increased cost of production would eventually result from a more intensive cultivation of old land, or a more extensive cultivation by resort being made to new and inferior soils.

In the third place Smith frequently adopts corn as

a standard of value. This Ricardo never does, maintaining with truth that political economy knows of no commodity that possesses all the characteristics essential to an invariable standard.

*B. On the Comparative Value of Gold, Corn, and
Labor in Rich and Poor Countries*

Adam Smith divides his treatment of rent into three parts.

First, he discourses on the rent of that land which always pays rent. Such are corn lands, *i. e.*, those which furnish us with our food supply.

Secondly, there are the lands which supply the raw produce out of which we satisfy our secondary needs — clothing, shelter, and the like. These lands sometimes do and sometimes do not afford rent.

Thirdly, Smith traces the variations in the ratios of exchange of these two classes of commodities as a nation progresses in opulence, and after a lengthy historical inquiry into the changes that took place in the value of silver from the fourteenth to the eighteenth century, concludes that, as a nation progresses in wealth, the value of those commodities belonging to Class II rises relatively to those of Class I. His contention, then, is that as a nation advances to opulence, luxuries and conveniences tend to rise in value as compared with necessities.

Ricardo in Chapter XXVIII of his "Principles," on the "Comparative Value of Gold, Corn, and Labor in Rich and Poor Countries," enunciates the contrary proposition, that gold is cheaper relatively to corn in a rich than it is in a poor country; that as a nation grows richer it becomes, more and more, increasingly

difficult to obtain the food supply, and that consequently corn tends to rise in value relatively to other things. In a word, agriculture is carried on according to the law of diminishing return, while in manufacture no such law operates.¹ His argument is chiefly composed of somewhat disconnected attacks on certain passages from Smith's "Digression on the Value of Silver," which Ricardo isolates from their context, and generally construes in a sense different from that intended by their author.

This latter consideration effectually accounts for the differences of opinion between the two economists on matters of detail.

It has been suggested, however, that Ricardo failed to grasp the particular object of Adam Smith's argument.² And if his blunders in the above mentioned chapter are taken as a guide, the opinion is well founded. It is at least possible, however, that he not only comprehended the drift of Smith's digression on the value of silver, but in addition attempted to controvert the conclusion therein set forth. How else can one account for the brief expression he gives of Smith's opinion and his own opposing one, in the following sentence. "I have endeavored to show," he says, "that it (the value of gold) will be low in rich countries and high in poor countries; Adam Smith is of a different opinion; he thinks that the value of gold estimated in corn is highest in rich countries."³

¹ We are aware that this statement is not strictly true, and that it is not found in Ricardo. Both the laws of diminishing and increasing return operate in agriculture and manufacture; but, whereas in the former the balance is in favor of the law of D.R., in the latter it is in favor of the law of I.R. While Smith tacitly assumed both agriculture and manufacture to be carried on according to the law of constant return, Ricardo tacitly assumed that law to operate in manufacture only.

² Principles, footnote, p. 366.

³ Principles, p. 267.

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to balance the other. To Ricardo, as corn becomes richer, corn inevitably becomes poorer owing to the action of the law of diminishing return.

IV. PROFITS

Relation between Profits, Wages, and Capital

The criticism of Adam Smith's doctrines of profits in relation to capital may be condensed into two parts.

In the first place there is the question of the effect of the accumulation of capital, with which, however, is involved a consideration of the relation of profits, capital, and wages.

In the second place there arises the inquiry as to how far the market rate of interest can be regarded as indicating like alterations in the rate of

regard to the accumulation of capital Adam Smith's teaching may be briefly summarized. In the first place, to the earlier social stage we need consider only the amount of labor employed in the production of an article as determining its exchange value, but in more advanced periods price is complex, and consists in the most general case of three elements, wages, profits, and rent. Wages are the reward of labor. Profit arises as soon as stock, being accumulated in the hands of one person, is employed by him in setting others to work, and supplying them with subsistence and materials in order to make a gain by the produce. Profits depend in the main on the amount of stock employed, altho the rate of interest is increasing, stationary, or declining, and on the increase of stock, since it

involves competition among capitalists for labor, raises wages and lowers profits. Conversely, a diminution in the amount of stock lowers wages and raises profits.

In Book III of the "Wealth of Nations" Adam Smith outlines what he conceives to be the natural progress of a nation in opulence. In the earlier stages, agriculture is the only or chief occupation; next small towns begin to arise and with them appears the growth of manufacture and a home trade between the country and the towns highly beneficial to both sets of producers. Finally, capital "overflows" into a foreign trade of consumption, or an international carrying trade. Agriculture is a more productive occupation than manufacture, and manufacture than the carrying trade. Capital, then, is only employed in a carrying trade because it exists in such quantity that a part of it cannot be profitably employed in agriculture, manufacture, or the home trade.

To both of these conclusions, namely: —

(1) That as capital accumulates profits tend to fall, and

(2) That capital "overflows" into the carrying trade, Ricardo urges objections. He holds the contrary opinions: —

I. That profits cannot fall except by reason of a rise in wages, and wages cannot rise unless the necessities and conveniences of life which support labor rise in "real" value, *i. e.*, unless a greater "real" value is paid to labor.

II. That capital is engaged in the carrying trade because certain "conveniences and ornaments of life" can be better obtained in that way

than by home manufacture or cultivation, and not because the said capital cannot be profitably employed at home.

With regard to the first of these propositions, Ricardo's theory is that the accumulation of capital gives rise to an increase in population which involves an increased demand for food. As additional food is only procured at greater cost, wages rise and profits fall. The cause, therefore, of the fall in profits is the increase in wages due, not to the competition of capitalists in their search for labor as suggested by Smith, but to the increased cost of food.

Ricardo admits Smith's conclusion if regard be had to the short period; but since both economists were considering ultimate and permanent conditions the difference of opinion remains. It can only be satisfactorily explained by a consideration of the assumptions underlying the arguments.

- A. Ricardo takes it for granted that an increase of capital leads to an increase in population. He neglects any possible rise in the standard of comfort.¹ Smith, tho in a former part of his work he acknowledges "that the demand for men necessarily regulates the supply of men, quickens it when it goes on too slowly, and stops it when it advances too fast,"² entirely overlooks this doctrine in discussing the problem under review.
- B. Ricardo postulates the law of diminishing return in agriculture. Increase of population means a need for an increased food supply and this, on account of the operation of the fore-

¹ Ricardo elsewhere acknowledges the possibility and desirability of a rise in the standard of comfort, consequent on an increase of capital. See *Principles*, p. 74.

² *Wealth of Nations*, Book I, chap. 8, p. 36.

going law, can only be obtained at increased cost. Adam Smith recognizes no such law, and consequently no such alteration in the price of food as the action of that law tends to bring about. Had the latter then been quite consistent he would have argued that accumulation of capital leads to increased population, and tho wages will temporarily rise, they will ultimately fall again to their former level. The difference of opinion, then, would have been attributable to Ricardo's recognition of the law of diminishing return and Smith's neglect of it.

The second proposition is based on Ricardo's valid contention that there can be no limit to demand for luxuries, nor therefore to the profitable employment of capital in producing such luxuries. Adam Smith, tho he elsewhere¹ refers to the illimitable nature of demand, inconsistently neglects such a consideration in discussing capital in relation to the carrying trade. It is not improbable that his *a priori* assumption of the right or "natural" order of things prejudiced his opinion on the subject of profits tending to a minimum with the progress of opulence, and the possibility of a redundancy of capital. On the other hand, Smith frequently catches glimpses of great economic truths, of which, however, he conceives neither the full meaning nor the real importance. The identity of production and consumption would seem to furnish a good example of this pardonable weakness. The possibility of a general over-production with which the problem under discussion is intimately connected, is a question that has puzzled many economists. Still we are inclined to agree with Ricardo, that as there

¹ *Wealth of Nations*, Book I, chap. xi, pp. 75-76.

is no limit to demand, there can be no limit to the profitable employment of capital, and that therefore "when merchants engage their capitals in foreign trade or in the carrying trade, it is always from choice and never from necessity."¹

B. *Profits and Interest*

Tho Adam Smith recognized that profits were composed of certain elements, he did not enter into a discussion of the different forces which govern those several elements. Hence his treatment is very general and inconclusive.

On the bald assertion that "wherever a great deal can be made by the use of money a great deal will commonly be given for the use of it, and that wherever little can be made by it less will commonly be given for it,"² he attempts to trace the alterations that have taken place in the rate of interest from the time of Henry VIII. His conclusion, based on the assumption that the legal rate followed and did not precede the market rate of interest, is that the legal rate having gradually fallen, the rate of profits must have fallen also. This result is in agreement with his opinion on the effects of the accumulation of capital on the rate of profits.

Ricardo, tho his treatment of profits is as unanalytical as Smith's, refuses to accept the latter's assumption that the legal rate of interest is a guide to the rate of profits. He virtually denies that the legal rate followed the market rate, and maintains that, tho this latter rate would be more reliable than the former, it is unfortunately not procurable. The legal

¹ Ricardo's *Principles*, p. 277.

² *Wealth of Nations*, Book I, chap. ix, p. 40.

rate of interest, he holds, is of little value, since it was to a large extent inoperative owing to the ease of evasion.

The market rate of interest is, generally speaking, governed by the rate of profits. While Ricardo affirms this, he holds that "the market rate of interest is subject to temporary variations from other causes"¹ than those which affect the general rate of profits. For instance, when price falls from an abundant supply, the rate of interest tends to rise owing to credit operations.² Again, funded property cannot be regarded as a steady criterion of the rate of interest.³ Moreover, government pays different rates for different securities.⁴

Ricardo then advances a little beyond Smith in showing that the rate of interest is only an element in the general rate of profits, and that the former is subject to forces which do not operate on the latter. Apart from this consideration, however, there is little importance in the discussion. Ricardo's greater knowledge of actual business affairs and of financial matters in particular probably led him nearer the truth than Smith.

V. BOUNTIES

Adam Smith objects to bounties on exportation and high duties on importation on the following grounds:—

1. They force trade into less advantageous channels than it would otherwise enter.
2. They force trade into positively disadvantageous channels because trades receiving bounties are necessarily losing ones.

¹ Principles, p. 282.

² Principles, pp. 282-283.

³ Principles, pp. 282-283.

⁴ Principles, pp. 282-283.

3. They do not encourage the production of corn because only the nominal price of corn is raised, and not its "real" price, and as this results in a rise in wages, all commodities are equally raised in price.
4. By lowering the value of silver all industry is depressed and foreign competition invited.
5. Instead, therefore, of advancing they retard the cultivation of land.

With the first and second of these objections Ricardo cordially agrees. He, however, takes exception to the third, fourth, and fifth.

In the first place, with regard to objection number three, he denies that the money price of corn regulates wages and through them, the price of all commodities. On the other hand, he affirms that the "real," and therefore the exchange, value of corn would rise, not only temporarily from increased demand, but permanently owing to the increased demand being supplied by the cultivation of inferior soils. Contrary to Smith, then, Ricardo is of opinion that bounties would benefit farmers and landlords much more than manufacturers, since corn would sell at a permanently higher price, whilst manufactured goods would be only temporarily raised in price. Again, he maintains that even if wages did rise, this would not lead to a rise in the price of commodities, but rather to a fall in the rate of profits.

Secondly, with regard to objection number four, Ricardo contends there cannot be permanently a high price on all commodities owing to foreign competition.

Thirdly, since there would be a permanent rise in the price of corn, the cultivation of land would be advanced and not retarded, owing to the increase in rent and the consequent increase of capital devoted to agricultural pursuits.

These opinions of Ricardo are undoubtedly the correct ones. They are, one can quite well see, the result of the application of a clear-cut if not elaborate theory to the solution of an economic problem. The dissimilar views at which Smith and Ricardo arrived are mainly owing to three considerations.

- I. In the first place Adam Smith's conception of the value of corn together with his neglect of the operation of the law of diminishing return in agriculture prevented him from seeing that the "real" as well as the "nominal" price of corn would rise from an increase in the demand for corn. He denied, of course, that a bounty on the exportation of corn did lead to an increase in demand, since he held that what increase might result from the foreign trade in that commodity, was wholly at the expense of the home market. This argument Ricardo neglects, tho be it said it affects little the ultimate considerations of the effects of a bounty. For it should be remembered that the demand for corn is inelastic. Therefore an increase in the foreign trade in corn would lead to a greater total demand rather than to an increase in the proportion of foreign to home demand.
- II. Secondly, Ricardo's theory of value led him to distinguish carefully between alterations in the rates of remuneration and alterations in price. There is really no connection between the former and the latter. With this consideration clearly understood and ever in mind Ricardo was always on the alert to bring to light the occasions on which Smith's less fixed and less consistent theory of value led him to assert or imply the contrary proposition.

III. In the third place, Ricardo invariably fixed his attention on permanent and ultimate conditions. He always "pushed" his theories as far as they would go. His neglect of the temporary and accidental reached in some cases, it may be contended, to the point of error. Smith as frequently considers the temporary as the permanent. In his discussion on bounties he sometimes postulates the former, sometimes the latter, and invariably he has in mind what he considers to have been the effects of bounties in the past. Even when he does consider permanent conditions it is doubtful whether he went as far as Ricardo in his conception of the ultimate. While he saw for example that a reduction in the value of silver led to increased prices, and therefore offered an invitation to foreign competition, he did not trace further the effect of the acceptance of this invitation in the subsequent releveling of prices.

VI. TAXATION

A. *The Tax Fund. Gross and Net Revenue*

Smith holds that "the riches and so far as power depends on riches, the power of every country must always be in proportion to the value of its annual produce, the fund from which all taxes must ultimately be paid."¹

Ricardo rightly argues that it is the net revenue and not the gross revenue that is the all important fund, out of which taxes are paid. Theoretically the net revenue of a society is the main consideration in

¹ *Wealth of Nations*, Book II, chap. v, p. 166.

discussing the fund on which taxes ought to fall. It is not a good and profitable expedient to tax capital.

It ought to be noted that Ricardo, as he himself suggests, is conscious of the advantage of a large population, even if no more net revenue were produced by it than by a smaller population. But "it is not on the grounds of any supposed advantage accruing from a large population, or of the happiness that may be enjoyed by a greater number of human beings, that Adam Smith supports the preference of that employment of capital which gives motion to the greatest quantity of industry, but expressly on the ground of its increasing the power of the country."¹ This error on the part of Smith in gauging the ability of a country to pay taxes by the amount of gross revenue arises from his erroneous opinion that the wealth of a country depends on the quantity of productive labor employed and that certain occupations employ more productive labor than others.

Ricardo does not definitely attack this position though he does not grant it. He merely denies the relevancy of the argument so far as the tax-fund or power of the nation is concerned.

B. *The Incidence of a Tax on the Produce of Land*

Taxes on rent fall altogether on the landlord. Taxes on the produce of land are, according to Smith, in reality taxes on rent and are, therefore, also paid by the landlord.

Ricardo agrees that a tax on rent falls on the landlord, but he holds the contrary opinion regarding taxes on the produce of land. Taxes on raw produce, he maintains, are not similar in their incidence to taxes

¹ Principles, p. 337.

on rent. A tax on raw produce increases the price of raw produce and falls on the consumer.

Ricardo ever had in mind the theory that the forces which determine the value of a commodity, particularly of an agricultural commodity, must be studied at the margin. Hence, he saw clearly that a tax on raw produce, since it really is an addition to cost of production at the margin, *i. e.*, on the land that pays no rent, must inevitably increase price.

Smith in so far as he failed to distinguish between marginal and intramarginal production must, as a necessary consequence, have failed to trace accurately the incidence of a tax on the produce of land.

The difference of opinion, then, regarding the incidence of such a tax is entirely due to Ricardo's insistence on the doctrine of the margin and to Smith's neglect of it. Curiously enough Smith's reasoning on the incidence of a tax on malt is entirely in accord with Ricardo's view of taxes on *all* raw produce.

C. *Taxes on Wages and Necessaries*

Ricardo's teaching in brief is that a general tax on wages raises wages and lowers profits. It is similar to a tax on necessities in that it raises wages. But whereas a tax on necessities increases the price of necessities and is paid partly by the receivers of profits and in part by the rich consumer, the former tax falls wholly on the receivers of profits.

Adam Smith is in agreement that a tax on wages raises wages. But, contrary to Ricardo, he holds the view that as a result of the rise in wages, the price of manufactured articles rises and the tax is shifted to the consumer, while in agriculture the rent of the landlord tends to fall.

The additional wages paid by manufacturers will occasion a rise in the price of manufactured goods, and will therefore fall on the consumers of those commodities; the additional wages paid by farmers will ultimately fall on the landlords who will receive a diminished rent. Smith also holds that a tax on necessities is virtually a tax on wages and has the same incidence. He therefore condemns taxes on wages and necessities.

Ricardo himself hits on the main cause of difference between his own opinions and those of Smith. He points out that Smith, as has been already stated, overlooked the fact that there is capital employed on land which does not yield rent, and that it is the cost of production on the land which does not yield rent that regulates price. Hence, of course, a tax on wages could not fall on rent. A tax on necessities could only fall on rent in so far as the receiver of rent consumed necessities. It would also fall on the receiver of profits both in so far as he consumed necessities, and, in addition, in so far as it raised wages. Similarly a tax on wages falls entirely on the profits of stock. "It does not entitle the master manufacturer to charge it with a profit on the price of his goods, for he will be unable to increase their price and therefore he must wholly and without compensation pay such a tax." ¹

This criticism, then, can be attributed to two circumstances: —

First, it is under the conditions that govern marginal cultivation that the labor which regulates price is carried on. Ricardo, tho he never uses the terms "margin" and "marginal," yet always entertains fixed ideas, very similar to those which the said terms suggest to the

¹ Ricardo's Principles, p. 209.

modern economist. More particularly is this true when he is considering problems connected with the cultivation of land. Adam Smith had no such fixed conception.

Secondly, Ricardo was strict in his adherence to the doctrine that the rates of remuneration have no real connection with price. It is because he saw this so clearly that he refused to identify himself with Smith's outcry against taxes on wages and necessities, and was personally indifferent as to which tax the government might be pleased to impose.¹

VII. COLONIAL AND FOREIGN TRADE

Adam Smith's teaching under the heading of "Treaties of Commerce" may be briefly summarized. Treaties of Commerce were arranged in order to enable a country to sell more than it could buy, and thus to secure a favorable balance of trade. They are disadvantageous to the favoring country and advantageous to the favored country. The Methuen Treaty by which reciprocity was established between England and Portugal in wine and woollens is set forth, and is held to substantiate this opinion.

Ricardo in part accepts Smith's conclusions, and by substituting England and a colony in the place of Portugal and England, he contends that a mother country can be benefited at the expense of a colony.

This is the opposite of Smith's doctrine, who maintains that a monopoly of the colonial trade leads to high profits in that branch of trade, that more and more capital is attracted to it, and that profits tend

¹ It should be noted that for the sake of argument Ricardo practically assumes the wages of labor to be at the "physiological minimum," and thus unable to bear any reduction.

to rise in all branches of British trade. Prices consequently rise and the foreign competitor has an advantage in those trades in which England does not possess a monopoly.

Ricardo, of course, holds this reasoning to be fallacious since, ever true to his theory of remuneration, he affirms that far from high profits being a cause of high price they do not affect price at all. He does, however, allow that there will be a worse distribution of the general capital and industry, and, owing to diminished supply, the prices of commodities will be raised. At the same time no change from one foreign trade to another, or from a home to a foreign trade can affect the rate of profits.¹ Once again do we find the more exact and scientific theory of remuneration as taught by Ricardo leading him to differ from Smith.

Again, Smith held that the value of a foreign trade to a country was inferior to that of a home trade because equal capitals would employ a less amount of productive labor in the former than in the latter. The element of time, too, was important. The longer period during which the capital was returned in foreign as compared with home trade further rendered foreign trade a less productive form of economic activity.

Ricardo did not accept this view. He held that tho only one capital instead of two capitals might be replaced by a foreign trade, the replaced capital would be equal in amount to the two capitals which would have been employed at home in the work of exchanging had no foreign trade been engaged in at all. The amount of productive labor employed, however, cannot be a criterion of the value of foreign trade. The important consideration is whether wants are satisfied or not. But without discussing further this question

¹ Principles, p. 332.

we believe Ricardo's objection to be a valid one. Just as Smith erred in his treatment of the varied forms of economic activity as exhibited in agriculture and manufacture, the retail and the carrying trade, by erecting the standard of "productive labor employed," in like manner did he fall into error in his discourse on foreign trade.

Finally, Ricardo's whole conception of foreign trade is more advanced than Smith's. The former was probably the earliest theorist to state the doctrine that comparative costs lie at the root of international trade. Furthermore, he insisted that if prices rose generally in a country, this would not alter the ratios in which commodities would exchange with one another. Money itself being the only commodity affected, its comparative cost having fallen, its exportation would follow until such time as the currency was restored to its normal value. Smith had no conception of the doctrine of comparative costs, nor did he fully appreciate, nor always allow for, the effects on price of a foreign trade in bullion.

VIII. SUMMARY AND CONCLUSION

We have examined Ricardo's criticisms of Adam Smith. The views of each writer on the matters of dispute, or apparent dispute, have been briefly set forth, and an attempt has been made in each case to account for the difference of opinion. It now remains to reduce to a few principles the results at which we have arrived.

And at the outset let it be said that tho much of what Ricardo says with regard to the subjects on which he differs from Adam Smith is true, there are instances in which either a more thoro study of the

context, or a more liberal interpretation, would have rendered his observations unnecessary. He did not, for example, read with sufficient care Smith's confusing pages on labor. Had he done so he would have stated the latter's view with more generosity. He would, and with justice, have complained of Smith's inconsistency in the use of terms; it is doubtful, however, whether he would have attempted to prove that labor is not a standard measure of value. At all events he would have shown that his idea of "labor" was very different from Smith's.

Had he been a more painstaking critic he would not have ascribed a new connotation to terms which he had adopted from the "Wealth of Nations" without drawing the attention of the reader to the alteration in meaning. Least of all would he have re-established these essentially new terms in Adam Smith's argument. Such treatment, however, Ricardo metes out to "real" wage, "rise" and "fall" of wages, a "rich" country.

Again, Ricardo frequently fails to observe that the assumptions which underlie an argument in the "Wealth of Nations" are quite different from the assumptions which he postulates in his "Principles," when attempting to combat the same argument. In his discussion of the rent of land, of the comparative value of gold, corn, and labor, of bounties, etc., he invariably insists on the importance of the action of the law of diminishing return. Nowhere does Adam Smith speak of that law. Yet curiously enough Ricardo argues as if Adam Smith, like himself, always assumed it. Still more amazing is it that he never in any single passage even indicates that he is aware of this striking fundamental difference between his own writings and those of his great predecessor. Again, in his discussions of the effects on profits of the accu-

mulation of capital, Ricardo fails to see that whereas he assumes that an increase of capital leads to an increase in population if there is no rise in the standard of comfort, Smith makes no such assumption. Had he been cognisant of these initial differences some of his arguments against Smith's opinions would have been characterized by emendation rather than negation.

We do not mean to imply that Ricardo was a destructive rather than a constructive critic. One of the outstanding features of the "Principles" is the manner in which subjects are introduced by means of quotations from the "Wealth of Nations." Indeed his treatise is founded on that of Smith. It is on Smith's involved treatment of labor that Ricardo builds his theory of "real" and "exchange" value, it is on Smith's theory of wages that he founds his so-called iron law; it is on the teachings of Smith that he bases his own chapters on Taxation and Currency. The germ of much of Ricardo's economic doctrine lies hidden in Smith's great work. We there find, tho but dimly evidenced and imperfectly expressed, the idea of value based on labor, of remuneration being concerned with rates, of rent. These "ideas" are, however, wrapped up in much that is general and inconclusive and a good deal that is inaccurate and inconsistent. Ricardo makes these truths which Smith, as it were, vaguely hints at, his central doctrines. He exhibits them in a clear light, he restates and co-ordinates them into a well-defined theory of value which, through all his discussions, he applies with the greatest consistency.

That theory may be divided into three main parts. First, there is the doctrine of abstract "real" value being regulated under a competitive system by the

amount of labor, direct and indirect, applied in production; secondly, that it is the labor applied at the margin or under the most disadvantageous circumstances that indexes value and that rent consists of the excess of total real value over and above that produced at the margin; thirdly, the annual amount of production represents a certain quantity of "real" value and that this real value is divided into wages and profits, the rates of which necessarily vary inversely. These three propositions form the base of Ricardo's economic system, in agreement with which he fashions all his discussions.

Smith had no such "sheet anchor." He first constructs an indefinite theory of value based on labor alone. Later he outlines another theory of "natural" value, which, he holds, is made up of certain natural "rates" of wages, profits, and rent, and he discusses the forces which govern these rates. In his treatment of wages one finds the elements both of Ricardo's "iron law" theory and of Mill's wage-fund theory. Of the real nature of rent he had but an inkling. His treatment of profits is similarly vague. What Smith did not, and what Ricardo did, see clearly was first, that the labor which regulates value is that which is carried on under the most disadvantageous circumstances and that therefore rent can have nothing to do with the determining of price, and secondly, that the rates of profits and wages are essentially complementary, the one to the other, and consequently that alterations in these rates do not in themselves affect price.

These two considerations, as we have attempted to show, account for several of Ricardo's criticisms. Sometimes the one, sometimes the other, is sufficient to explain the difference of opinion.

The first is important in leading to Ricardo's criticisms of Smith's teaching regarding: —

- (1) The Rent of Land.
- (2) The Value of Corn.
- (3) The incidence of a tax on the produce of land.

The second led to his contrary conclusions regarding: —

- (1) Alterations in the wage-rate in relation to price.
- (2) The relation between profits, wages, and capital.
- (3) Bounties.
- (4) Foreign trade.

Both considerations enter into the cause of the difference of opinion on the incidence of taxes on wages and necessities.

In so far as Ricardo applied these theoretical conceptions in the solution of deductive economic problems, he made a real advance beyond the results achieved by Adam Smith's indefinite treatment of economic phenomena. In formulating a more consistent theory and substituting in the place of the vague generalization so characteristic of the "Wealth of Nations," he led the way to the exact and logical treatment the science received at the hands of J. S. Mill and his successors, even altho the highly abstract nature of his discussions brought about the great movement in favor of the historical method.

Again, Ricardo's challenge of Smith's view of the value of corn leads to certain differences of opinion. Adam Smith considered the value of corn to be practically constant over long periods. He held that the

demand for corn regulated the supply of corn and the supply regulated the demand in that only a given population could be maintained by a given amount of corn. In this view Smith is, of course, quite correct. The value of corn is more constant over a long period than the value of other commodities, including the precious metals and money. From the point of view of strict theory, however, Ricardo's contention that not even corn can be considered a standard of value is incontrovertible. In those purely theoretical discussions on the effect of a bounty on exportation, and on the changes which take place in the comparative value of gold and corn as a country progresses in opulence, Ricardo's conclusions are more accurate than those of Smith. Adam Smith's neglect of the law of diminishing return in agriculture, to which reference has already been made, is also important in this connection. Again must Ricardo's opinion be respected where that law is assumed by him in discussing theoretical problems in which references to likely changes in the value of corn are made; tho in actual practice its operation in tending to raise the price of corn seems ever indefinitely to be postponed owing to the widening of the market and to the modern facilities for transportation, importation, and exportation.

Again, as we have observed, Ricardo oftener than not concerned himself with permanent and ultimate rather than with temporary and immediate conditions. Smith as often considers the former as the latter. But even when he does consider the permanent, he does not "push" his theories as far as Ricardo. And this consideration leads to our final and concluding observation. If we set aside those criticisms which are the result of misunderstanding or are directly

owing to differences of connotation accompanying co-incidence of denotation, if we pass over without further remark those which are largely due to Ricardo's none too generous interpretation of certain of Smith's passages, we find that the remaining and most important criticisms in which Ricardo makes a real advance on the teaching of Smith, are mainly the result of the very different attitude he assumed towards economic phenomena as compared with Adam Smith, and indeed, with all his predecessors in the realm of economic thought and investigation. His method was essentially the abstract deductive method, tho the generalizations which form the base of his reasoning are often the result of a careful inductive process. As Bagehot well points out,¹ Adam Smith did not seem aware that he was dealing with an abstract science at all. His treatment often approximates to the abstract on account of the narrow view he took of the nature of man in his economic writing. Ricardo on the contrary builds on the abstraction of the economic man. He formulates the abstraction of "real" value. He develops a highly abstract theory of remuneration, and an equally abstract theory of rent, during which process he exhibits the elements of the doctrine of the margin. Finally, armed with abstraction, he investigates the domain of foreign trade, and formulates the doctrine of comparative costs, which received such careful and elaborate development at the hands of J. S. Mill. Adam Smith, on the other hand, is inductive and deductive in turn, now developing a theory from the observation of phenomena, anon illustrating an assumption or sweeping generalization by an appeal to fact. He seldom, however, travels beyond the concrete. His work, tho monumental

¹ *The Political Economy of Adam Smith*, Walter Bagehot.

and invaluable, is nevertheless of too general a character to be of permanent and lasting *scientific* worth. It is scarcely, then, matter for surprise that when Ricardo read the "Wealth of Nations" he should have found so much with which to disagree, so much to qualify and emend, yet withal so much to exalt and appraise.

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A GROUP OF TRUSTS AND COMBINATIONS

SUMMARY

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RECENT investigations and government suits have brought to light numerous data in regard to the history and methods of operation of certain industrial combinations and "trusts" which are interesting in a high degree. Some of these organizations show a remarkable similarity to certain pools existent two or three decades ago; some show strikingly unfair methods of competition; others that the pool form of combination is one of the most persistent features of modern industrial organization.

Of necessity any examination of several of these combinations and trusts in the space of a single study must involve an undesirable degree of disconnectedness, especially as, with one or two notable exceptions, those selected by the writer for examination present a great diversity of characteristics. In the majority of the cases there is not enough information available to furnish material for a minute study upon any one of these particular trusts or combinations. Hence a sketch has been attempted, in the space of the present

article, of the history and methods of operation of the following: the Electric Lamp Combination, the Keystone Watch Case Company, the United Shoe Machinery Company, the Consolidation Coal Company, the Bath Tub Combination, the National Cash Register Company, and several wholesale and retail dealers' associations whose methods of operation have been substantially alike.

I. THE ELECTRIC LAMP COMBINATION

Before the year 1905 the only incandescent lamp manufactured and sold in the United States commercially was the carbon filament lamp. These lamps had been invented many years previously and were in general use throughout the entire United States. In 1894 the patents on this type of lamp expired, and not long after this the first combination in the lamp business was effected.

On August 4, 1896, the General Electric Company and six others¹ formed an unincorporated association known as The Incandescent Lamp Manufacturers for the purpose of fixing prices, allotting business and customers, and prescribing rules and regulations for the manufacture and sale of carbon filament lamps.² The organization was to all practical intents and purposes a pool of the same general type as those of earlier decades. As in the case of the Wall Paper Manufacturers' Association of 1880³ and the Sand Paper Association,⁴ each member of the pool was

¹ Bryan Marsh Company, Buckeye Electric Company, Columbia Incandescent Lamp Company, Sunbeam Incandescent Lamp Company, Adams-Bagnall Electric Company, and Perkins Switch and Manufacturing Company. The latter two of these concerns later gave up the incandescent lamp business.

² *United States v. General Electric Company, and Others. Petition in Equity in Circuit Court of United States for the Northern District of Ohio*, pp. 12-15.

³ *New York Senate Trust Investigation, 1888*, p. 610.

⁴ *Ibid.*, p. 620.

obliged to make a large cash deposit as a guarantee of good faith and of conformity to the rules of the Association. Violations were punishable, as usual under a pooling agreement, by the system of fines.¹ The first agreement was for a term of three years from August 4, 1896, and was extended from time to time until a new type of combination was adopted.

After this organization was completed several other companies allied themselves with the original seven members of the association. In the few months remaining of the year 1896 four new concerns² joined the combination. In 1897 one new member³ was added and in 1901 five⁴ more. Several of the concerns either withdrew from the association or else discontinued the manufacture of carbon filament lamps, seven all told.⁵ The Incandescent Lamp Manufacturers also executed agreements with the Westinghouse Company under the terms of which the Sawyer-Man Electric Company, — at that time, the lamp subsidiary of the former corporation, — agreed to maintain the prices fixed by the combination.⁶

In May, 1901, the National Electric Lamp Company was incorporated in New Jersey. This corporation was a holding company designed to combine all the interests in the combination known as the

¹ Op. cit. Petition in Equity, p. 13.

² New York and Ohio Company, Davis Electric Works, Aylesworth and Jackson, Bernstein Electric Company.

³ Shelby Electric Company.

⁴ Fostoria Incandescent Lamp Company, Colonial Electric Company, General Incandescent Lamp Company, Munder Electric Company, Warren Electric and Specialty Company.

⁵ Op. cit. Petition in Equity, p. 14.

The Shelby Electric Company and Bryan Marsh resigned from the combination shortly after its organization but rejoined it on Jan. 4, 1901. Adams-Bagnall Company, Perkins Electric Switch and Manufacturing Company, the Davis Electric Works, Aylesworth and Jackson and the Bernstein Electric Company went out of the lamp business.

⁶ Op. cit. Petition in Equity, p. 15.

Incandescent Lamp Manufacturers, excepting only the General Electric Company, the Westinghouse Electric and Manufacturing Company, and their subsidiaries. It was also intended to induce as many independent companies as possible to enter the combination.¹ The capitalization of the National Electric Lamp Company was not large. It consisted of \$150,000 of preferred and \$500,000 of common stock. The company also issued \$2,000,000 of bonds. The General Electric Company secured \$360,000 in common stock, and the remainder of the common and the preferred issues, except about \$16,000 of common, was distributed in acquiring the stocks of other companies, members of the electric lamp pool, as was also \$1,314,000 of the authorized two million of bonds.² As a result of these operations, the National Electric Lamp Company found itself in control of all the parties to the original combination of 1896, excepting only the General Electric Company, Westinghouse Electric and Manufacturing Company, and five others.³ Four of these five others were acquired in 1902 and 1903, while the fifth was brought into the combination in 1907.⁴

Before the incorporation of the National Electric Lamp Company, there were in existence outside of the lamp pool some seven independent lamp companies. Against these the new corporation began a campaign of acquisition. Of the seven competitors which were in existence outside the combination in 1901, it gradually acquired four. Of the six competitors which came into being between the time of the organization of

¹ *Op. cit.* Petition in Equity, p. 17.

² *Ibid.*, pp. 17-18.

³ Colonial, Munder, and Shelby Electric Companies, New York and Ohio Company and the Warren Electric and Specialty Company.

⁴ *Op. cit.* Petition in Equity, p. 19.

the National Electric Lamp Company in 1901 and the middle of the year 1908 the combination was also able to acquire three, two in 1905 and one in 1907. This movement is shown in the following table:

ACQUISITION OF CONCERNS BY THE NATIONAL ELECTRIC LAMP COMPANY ¹

Year	Members of former pool not controlled in 1901	Existing concerns competing in 1901	New concerns organised after 1901
1902	2	1	—
1903	2	—	—
1904	—	—	—
1905	—	1	2
1906	—	—	—
1907	1	1	1
1908	—	—	—
1909	1	1	—

In order to finance these acquisitions, which were made sometimes by cash payments and sometimes by notes, bonds being used in only two instances, the General Electric Company now and then advanced cash to the National Electric Lamp Company, the latter concern issuing to it from time to time bonds, to liquidate the preceding advances.² Thus it came about that in August, 1905, the authorized bonds of the National Electric Lamp Company were increased to \$4,000,000. In December, 1908, the \$150,000 of preferred stock of the concern was retired and the \$500,000 of authorized common stock was increased to \$2,500,000. Of this latter increase \$500,000 was issued to stockholders for cash in January, 1909, and at the same time the remainder was issued as a stock dividend representing a part of the accrued profits of the company. Again, in the middle of the same year the authorized issue of capital stock was

¹ Compiled from statements in *Petition in Equity*, pp. 19-21.

² *Op. cit.* *Petition in Equity*, p. 22.

increased, this time to \$4,000,000, the extra \$1,500,000 being issued to stockholders as a stock dividend and a portion of the accrued profits of the Company. The same process was repeated in March, 1910, when the issue of stock was increased to \$5,000,000 and another million dollars distributed.

The General Electric Company, it may be observed, had from the first owned a majority of the entire stock of the National Electric Lamp Company. None of this, however, stood in its own name, for the General Electric Company preferred that the National Company should appear to be an independent concern.

The lamp combination increased its control of the lamp business by entering into further agreements, in 1904 and 1907, with the Westinghouse Electric and Manufacturing Company, whereby the latter concern agreed to maintain such prices on carbon filament lamps as should be fixed by the General Electric Company, the National Electric Company, and their subsidiaries. Agreements of a like nature were secured from the Capital Electric Company and Kentucky Electric Company in 1904; and the Aetna and Gilmore Electric Companies, the Franklin Electric and Manufacturing Company, and Liberty Electric and Manufacturing Company in 1909. These agreements included the companies mentioned in the government's petition as being either existent outside the combination in 1901, or organized subsequent to that year, of which the National Electric Lamp Company did not secure direct control.¹

In 1906 the General Electric and National Companies obtained by contract from the Siemens and Halske Aktiengesellschaft of Berlin as vendors "the exclusive right to manufacture, use, and sell in the

¹ *Op. cit.* Petition in Equity, p. 25. See also *supra*, p. 4.

United States, its territories and dependencies, tantalum filament lamps (excluding the manufacture of filaments therefor) " under the patents of the vendors. For this privilege the American companies paid \$250,000 in cash, 60 per cent of which expense was borne by the General Electric Company and 40 per cent by the National Electric Lamp Company. In addition the American companies agreed to allow a share of the profits to the foreign concern and to buy all tantalum filaments of the Siemens Company.¹ In the same year, for \$100,000 in cash paid to vendors² and an agreement as to a royalty upon each lamp sold in the United States, an option was secured from the Deutsche Gasglühlicht Aktiengesellschaft (Auer Gesellschaft) of Berlin for exclusive rights to the "tungsten filament" lamps that might follow the applications and inventions of the Auer Company.

In 1909 an option was secured by the General Electric Company from the Bergmann Elektrizitäts-Werke of Berlin, Germany, and from S. Bergmann, upon their patents and applications upon all kinds of incandescent lamps and also the processes and machinery employed in the manufacture. The option was subsequently exercised, and upon payments aggregating \$175,000³ the German company agreed to, and did, cease doing business in the United States after May 10, 1909. Further, in the same year, the applications and inventions covering "tungsten filaments" of the Internationale Wolfram Lampen Aktien Gesellschaft (Just & Hanaman), of Budapest, Hungary, and of Dr. Hanz Kuzel of Vienna, Austria, were

¹ Op. cit. Petition in Equity, pp. 27-28.

² Division of expense between the General Electric Company and National Electric Company was as before 60 and 40 per cent respectively.

³ General Electric sold the National Company 40 per cent interest subsequently.

bought by the two American companies, the former for \$250,000, the latter for \$240,000.¹ These purchases represented patents covering practically all the valuable inventions and applications of "tungsten" and "tantalum filament" lamps. By their acquisition the National Electric Lamp Company and the General Electric Company practically forestalled any possibility of competition in these kinds of lamps in the United States.

The General Electric Company and National Electric Lamp Company were now possessed of a handle to use against the independent manufacturers through the jobbing trade. The patents upon carbon filaments had lapsed in the nineties, and jobbers were entirely at liberty to buy from whom they pleased. But both the "tungsten" and "tantalum" lamps were in competition with carbon filament lamps. Inasmuch as this was the case, it now became possible for the lamp combination controlling these two types of lamps to require of all jobbers desiring to purchase them that they should also buy their carbon filament lamps exclusively from the combination. This state of affairs, so the government alleged, made it practically impossible for any outside company to successfully engage in the business of manufacturing carbon filament lamps.² The power of the lamp combination was from time to time greatly strengthened by contracts with makers of lamp machinery, tubes, bulbs, and bases, either to sell to the combination exclusively or else at prices greatly below those quoted to independents and competitors.³

Through the series of incidents described, the General Electric and controlled companies together with those

¹ *Op. cit.* *Petition in Equity*, pp. 27-30.

² *Ibid.*, pp. 31-32.

³ *Ibid.*, pp. 34-37.

concerns with which agreements had been made came to control ninety-seven per cent of the electric lamp business of the United States. This control and the methods by which it was acquired led to the suit by the government against the combination under the Sherman Act and the handing down on October 12, 1911, of a decree against it in the Circuit Court for the Northern District of Ohio. It was ordered that the General Electric Company and all its subsidiaries must henceforth conduct business as the General Electric Company, all the subsidiaries being dissolved.¹ Contracts with manufacturers of machinery, bulbs, and tubing, prohibiting sale to others than defendants or obligating sale to defendants at different prices than to competitors, were enjoined, as were also agreements fixing the prices of any sort of lamps by the defendants in either the wholesale or retail trade.² Differentials on lamps of the same quality were forbidden.³ Contracts compelling purchasers of "tungsten" and "tantalum" and other filament lamps to buy all their carbon filament lamps of defendants as a condition to obtaining the first mentioned were also prohibited.⁴ Discriminations against those not buying carbon filament lamps of the defendants were forbidden and enjoined when such parties purchased lamps of other filaments.⁵ The right to fix lower rates to customers of rival manufacturers than were made to the established trade was denied,⁶ while those independent concerns formerly

¹ *United States v. General Electric Company* in Circuit Court of United States for Northern District of Ohio. In Equity, No. 8120. Final decree, pp. 3-4.

² *Ibid.*, pp. 5-6.

³ *Ibid.*, p. 7.

⁴ *Op. cit.* Petition in Equity, pp. 7-8.

⁵ *Ibid.*, p. 8.

⁶ *Ibid.*, final decree, p. 9.

in alliance¹ with the combination were forbidden to make contracts under license agreements, so far as these fixed prices and terms of sale at which purchaser or vendee from a manufacturer should sell incandescent electric lamps.²

II. THE KEYSTONE WATCH CASE COMPANY

The second combination, the Keystone Watch Case Company, did not attain in its field of industry so great a degree of dominance as did the lamp combination in the manufacture and sale of electric lamps. Neither does it exhibit methods of competition as questionable as did the latter combination and some others that will be considered. But it did succeed in obtaining a very substantial control of the watch case business; and it is also of interest as an illustration of the widespread tendency on the part of manufacturing combinations to control as far as possible the jobbing trade by fair means or foul.

The business of manufacturing watches may be divided into two parts, the manufacture of watch cases³ and the manufacture of watch movements. In 1899 the business of T. Zurbrugg, Bates & Baker, and H. Muhr's Sons, engaged in the industry of watch case manufacture, was consolidated under the name of T. Zurbrugg Company, a corporation, and almost immediately was acquired by the Riverside Watch Case Company of Riverside, New Jersey. At that time a corporation known as the Keystone Watch

¹ *Supra*, p. 7.

² *Op. cit.*, pp. 9-10.

³ The statements herein made refer to the filled watch case industry only. Ninety per cent of all the watch cases manufactured and sold in the United States are filled watch cases.

Case Company engaged in the same industry was also in operation in the city of Philadelphia. Of this latter concern Zurbrugg and others were able to obtain control, and thereupon they organized under the laws of Pennsylvania "The Keystone Watch Case Company" for the purpose of taking over both the Riverside Watch Case Company and Keystone Watch Case Company. For the latter of these two concerns payment was made partly in cash but mostly in the stock issued by the new company.¹

In August, 1899, a concern known as the Philadelphia Watch Case Company was organized by the interests connected with the parent company. The purpose of this concern was the marketing of the products of the Riverside Plant of the new corporation, and also, it is alleged, to give to the general public the idea that the two plants of the combination were being operated independently.² In the succeeding year the combination began to reach backward into the field of watch movements, and acquired the entire capital stock of the New York Standard Watch Company, a corporation of New Jersey, which manufactured a low grade watch movement and whose separate corporate existence was continued. This acquisition was closely followed in 1901 by the purchase of the United States Watch Company. A new corporation was then organized under the same name to take over the property and all the capital stock (\$1,000,000) of this new acquisition.³

In January, 1903, the Keystone Company bought from a trustee in bankruptcy the trade marks and good

¹ *United States of America v. The Keystone Watch Case Company and Others*. Petition in Equity in Circuit Court of United States for Eastern District of Pennsylvania, pp. 4-5.

² *Ibid.*, p. 5.

³ *Ibid.*, pp. 5-6.

will of the E. Howard Clock Company. The Howard watch movement was a well known and favored one, and the Zurbrugg interests caused to be organized in New Jersey a corporation known as the E. Howard Watch Company, which took over the purchased trade marks and good will as well as all the property that had hitherto belonged to the United States Watch Company. The new corporation then proceeded to manufacture, advertise, and sell a high grade movement known as the E. Howard movement, which differed in many respects from the old, genuine Howard watch.¹ Also, in 1903, the Keystone Company purchased the entire common stock of the Crescent Watch Case Company.² Now the Crescent Company, which had been organized many years previously, had purchased in 1890 the entire watch case business of the American-Waltham Watch Company. Three years later they had absorbed the Bay State Watch Company of Boston and dismantled its plant.³

In the same year the Keystone Company acquired a 42 per cent interest in the American Watch Case Company of Toronto, Ltd., a concern engaged in the manufacture of watch cases in Toronto, Canada. The balance of the stock of this concern was owned by the Waltham Watch Company and the Elgin Watch Company, and the officers of these two corporations. The acquirement of this interest was followed by the organization of the Keystone-Crescent Watch Case Company, of Canada, Ltd., for the purpose of marketing the products of the American Watch Case Company. The capital stock of the Keystone-Crescent Company was owned by the defendant company,

¹ *Op. cit.* United States v. Keystone Watch Case Co., *Petition in Equity*, pp. 6-7

² The preferred stock was also purchased in 1906.

³ *Op. cit.* *Petition in Equity*, pp. 7-8.

the Keystone Watch Case Company.¹ The next step in the progress of the combination was a contract between the Keystone Watch Case Company and the Elgin Watch Company in 1904, whereby the former was placed in exclusive control of the entire export trade of the latter company except that to Canada. In 1909 another contract made with the Waltham Watch Company constituted the Keystone Company sales agent of the former company in all the principal foreign countries in which there was a trade in watch cases excepting only Great Britain, France, and Spain.²

Down to the year 1910 the operations of the Keystone Company may be described as secret. The organization of separate companies was continued, and separate sales agencies were maintained in the marketing of products. In the early part of January, 1910, however, this policy was definitely abandoned by the outright transfer to the Keystone Company of the properties of all the various subsidiary companies.³ On January 15, 1910, a circular letter was sent to the various jobbers throughout the country. The letter called attention to the facts that:—

1. A memorandum of prices was enclosed that was being sent out to all the retail trade.
2. A memorandum of prices was also enclosed at which Boss, Crescent, Planet, Crown, and Silveroid watch cases and Excelsior watches were to be billed in future to jobbers; which prices were to be net and subject to a cash discount only.

¹ *Op. cit.* *United States v. The Keystone Watch Case Company*. Petition in Equity, pp. 8-9.

² *Ibid.*, p. 9.

³ *Ibid.*, p. 13.

- ✓ 3. It had been determined to sell goods exclusively to jobbers conforming voluntarily to the wishes of the company in the matter of sales.
4. Whether the wishes of the Keystone Company were complied with or not, that company would, from time to time, exercise its rights to select the jobbers to whom it would sell its goods. It would refuse to sell to those who handled the goods of the Keystone Company in a manner which that company regarded as detrimental to its interests.
5. Sales of the brands mentioned under point 2 would be at fixed prices, and *it was desired*¹ that sales by jobbers should be without deviation from the prices fixed for sales to retailers, subject only to the cash discount.
- ✓ 6. All jobbers of goods under the above trade marks and also under the Howard trade mark *were requested*¹ not to deal in watch cases other than those manufactured by the Keystone Watch Case Company.
7. Howard Watches would be sold under terms of the license.
8. All advertisements of Keystone goods would be subject to approval of that company.²

To avoid any danger of misunderstanding the agents of the Keystone Company followed up the circular letter thus issued to the jobbers. The latter were informed that the terms laid down in this mildly worded epistle would be strictly enforced and that if the demands of the Company were not acceded to the jobbers might be entirely deprived of handling

¹ Italics are mine.

² Cf. circular letter of January 15, 1910. Op. cit. *The United States v. The Keystone Watch Case Company*. Petition in Equity, pp. 14-15.

the Keystone line of goods. This threat was influential in securing exclusive contracts from a large percentage of the jobbing houses.¹

To destroy competition, the Philadelphia watch case works of the company were utilized to turn out large quantities of inferior grade watch cases not labeled with any of the Keystone brands, which have been put upon the market at prices regardless of cost, solely for the purpose of meeting the competition of other manufacturers. Threats of total destruction have been frequently used against its competitors, so the Government alleges, for the purpose of acquiring the business of these various concerns.² The result has been that the Keystone Company has been able to force out of the filled watch case business all competitors, except six who together do not control more than 20 per cent of the entire watch case business of the United States.³

In the circular letter of January 15, it was stated that the Howard watch was to be sold subject to the license which was issued with each watch. This license provides and has provided that: —

1. This movement shall not be removed from its case or used in any other case, nor the case used for any other movement.
2. This watch shall not be sold to any one who is regarded as objectionable to the manufacturer, nor the license removed from any box nor the box sold without license.
3. Retailers shall not advertise, sell, or offer to sell this watch at a less price than —.⁴

¹ Op. cit. *The United States v. Keystone Watch Case Company*. Petition in Equity, p. 16.

² *Ibid.*, p. 17.

³ *Ibid.*, p. 18.

⁴ *Ibid.*, pp. 21-22.

The license states that the watch is covered by one or more of three patents and that a violation of the above conditions by vendor, vendee, or user constitutes an infringement, and that the infringer will be prosecuted as such.

The price policy has apparently been to secure large profits. Leaving out of consideration the amount of gold, the cost of the manufacture of similar sizes and patterns of watches is about the same. Yet in one instance the cost to the retail purchaser of a certain case is twice the cost of a similar case, altho the latter case contains 20 cents of gold less. It is interesting to note that in 1910 the Keystone Company earned 14 per cent on its capital stock of \$6,000,000; about one-half of the capital stock, according to the Government, representing trade marks, good will, and the like.¹

III. THE UNITED SHOE MACHINERY COMPANY

On turning from an examination of the Keystone Watch Case Company to the study of the United Shoe Machinery Company, one passes from a combination with a very substantial degree of control to a combination that possesses practically an absolute monopoly. The United Shoe Machinery Company has for many years been pointed out, and with justice, as our foremost example of a patent monopoly. The formation of this combination, and especially its methods of retaining its dominance in the industry, are therefore highly interesting.

In the manufacture of shoes four classes of machinery are used which are considered essential to the process: lasting machines, welt sewing and out-sole stitching

¹ Op. cit., p. 23.

machines, heeling machines, and metallic-fastening machines.¹ All of these four classes of machinery are exceedingly expensive to manufacture. Because of this fact and more especially because the best of such machines have been and are manufactured under letters patent of the United States by other parties, it has for a considerable period been impossible or else impracticable for shoe manufacturers to turn out their own machinery. To meet the enormous demand for shoes, manufacturers to the number of more than 1,500 have sprung up over the country. It was also necessary that shoe manufacturers should be equipped with thoroly up to date equipment, which, on account of the above mentioned circumstances, they were obliged to secure from the manufacturers of machinery.

Prior to the seventh day of February, 1899, four companies, under letters patent of the United States, sold and leased in the aggregate 85 per cent of the shoe machinery included in the four above mentioned groups. These companies were the Goodyear Shoe Machinery Company, the Consolidated and McKay Lasting Machine Company, the McKay Shoe Machinery Company, and the Eppler Welt Machine Company, all corporations of the State of Maine.²

Individually the proportions of machinery manufactured by various concerns were about as follows: The Consolidated and McKay Lasting Machine Company manufactured 60 per cent of all lasting machines; the McKay Shoe Machinery Company controlled about 70 per cent of the heeling machines made and about 80 per cent of the metallic fastening machines;

¹ *United States v. Winslow et al.* Indictment No. 114 in Circuit Court of the United States for District of Massachusetts, p. 6.

² *Ibid.*, pp. 7-8.

the Goodyear Shoe Machinery Company manufactured both lasting machines and sewing and stitching machines. Its output of the former was about 10 per cent of the entire country's product and of the latter 80 per cent of the same.¹

Until 1897, these various concerns operated independently of one another, shipping throughout the United States either on contracts of sale or lease free from restraint as to customers, prices, or rentals to be charged for their machines or terms of sale or lease. But the defendants in the suit by the Government, not satisfied with the large degree of monopoly that their companies enjoyed under the patents owned, and with a view to strengthening their hold upon the industry, organized a corporation at Boston on the seventh day of February, 1897, under the laws of New Jersey. This corporation was known as the United Shoe Machinery Company, and had an authorized capitalization of \$25,000,000 of stock, divided equally between common and preferred. Its purpose was the manufacture, purchase, sale, leasing, and operation of, and the dealing in and with all kinds of machinery, tools, and implements, but especially boot and shoe machinery. Of this new corporation the defendants became the officers, and continued in such capacity down to the time of the filing of the suit against them.

The United Shoe Machinery Company thus organized took over the capital stock of the four above mentioned corporations, — the Goodyear Shoe Machinery Company, the Consolidated and McKay Lasting Machine Company, the McKay Shoe Machinery Company, and the Eppler Welt Machine Company, — by means

¹ United States v. Winalow et al. Indictment No. 113 in Circuit Court of the United States for the District of Massachusetts, pp. 16-17. The percentage of the Eppler Welt Machine Company is not given.

of an issue and exchange of its stock for that of the four last mentioned companies.¹ From that date on the concern did business as the United Shoe Machinery Company of New Jersey, but also operated two other concerns of which it was the real head, the United Shoe Machinery Company of Maine, and the United Shoe Machinery Company of Connecticut, and besides these some fifteen other subsidiary corporations,² control of which the United Company from time to time acquired. When Winslow (the President) and others were indicted in 1911, the United Company and the corporations controlled by it were said to handle 98 per cent of the total output of shoe machinery.³

Whereas formerly the various concerns manufacturing shoe machinery had operated in interstate commerce both by selling and leasing machines, the new corporation absolutely ceased to sell any shoe machinery to shoe manufacturers,⁴ adopting exclusively a system of leasing. By the terms of these leases the various manufacturers agreed to use exclusively for a period of seventeen years from the execution of the lease each and every machine included in the group of machinery controlled by the United Company,⁵ being bound at the same time to use in their business only such machinery and forbidden to use the machines of any other company, upon penalty of the forfeiture of their leases and contracts.⁶ The result of these tactics was to force out of business several independent concerns, among which were the Goddu Sons Metal Fastening Company, the Duplessis Independent Shoe

¹ *Op. cit.* Indictment No. 114, p. 10.

² *Cf. List of Companies, op. cit., United States v. Winslow et al. Indictment No. 114, pp. 13-14.*

³ *Ibid.*, p. 18.

⁴ *Ibid.*, Indictment No. 113, p. 48.

⁵ *Ibid.*, Indictment No. 114, p. 18.

⁶ *Ibid.*, Indictment No. 113, p. 48.

Machinery Company, the Standard Shoe Machinery Company, and Harry E. Cilley.¹

The United Company acquired for cash or by an exchange of stock a large number of concerns who were engaged in the same business, and also their letters patent, taking from the vendors in substantially all instances covenants not to engage in competition with the United Company and also covenants that if they at any time invented machines, or patented them, or improved them, or acquired any interest or ownership therein, they should assign the same to the United Company. A partial² table of the concerns acquired is of interest: —

TABLE OF CONCERNS ACQUIRED BY THE UNITED SHOE
MACHINERY COMPANY³

Date acquired	Number of concerns	Date acquired	Number of concerns
1899	5	1906	2
1900	3	1907	1
1901	3	1908	2
1902	5	1909	1
1903	3	1910	4
1904	4	1911	3
1905	1		—

Total 37

From the above mentioned contracts and covenants with competitors it would appear that the United Shoe Machinery Company has always stood in danger of competition in spite of its supposed patent monopoly. In other words, tho the basis of the control of that corporation has been the patent, it is only the repeated purchase of concern after concern at enormous prices

¹ Op. cit. United States v. Winslow et al. Indictment No. 114, pp. 25-26.

² The Grand Jurors affirm in their presentment that the list from which this table is made up is only a partial one.

³ Op. cit. United States v. Winslow et al. Indictment, No. 114, pp. 26-30. Table compiled from list there given.

and the taking over of newly invented processes and patents that have enabled it to survive. An exceedingly good example of this is seen in the Plant incident. Thomas G. Plant invented machines designed to perform all the operations of the machines included in the four groups necessary to the manufacture of shoes. In May, 1910, he installed in his plant in Boston a complete set of his new machines, dismantling and taking out of the factory the machines of the United Company¹ which had been hitherto in use. The conclusion of the incident was that the United Company bought a majority of the capital stock of the Plant concern for \$6,000,000. In return Plant assigned all interests in patents and rights thereto that he might own or control for the subsequent fifteen years.²

IV. THE CONSOLIDATION COAL COMPANY

In one sense of the word it does not seem proper to include in this group of combinations and trusts the Consolidation Coal Company, on account of its close and intimate connection with the Baltimore and Ohio Railroad. Inasmuch, however, as the methods of that and allied concerns in dealing with certain independents are of interest it has been decided, upon consideration, to make a brief examination of it.

The Consolidation Coal Company was incorporated in March, 1860, under the laws of Maryland, and by the early years of the twentieth century had outstanding \$10,250,000 capital stock. It also had a bonded indebtedness of \$600,000 outside of \$1,000,000 of the underlying bonds of the Cumberland and Pennsylvania

¹ Op. cit. Indictment No. 114, pp. 31-32.

² Ibid., pp. 32-33.

Railroad which it had acquired.¹ On the 20th day of June, 1901, the Fairmount Coal Company was organized and purchased a large amount of coal property upon which were located thirty-five mines with an output at that time of roughly three and one-half million tons per annum.² In the same year, under the laws of Pennsylvania, the Somerset Coal Company was incorporated with a capital stock of \$4,000,000 and an authorized bond issue of \$4,000,000.³ The Clarksburg Fuel Company was also organized in 1901 under the laws of West Virginia, consolidating several coal properties. Its capitalization was \$3,000,000 and it issued \$2,500,000 of bonds.⁴ About 1903 a process of rapid consolidation was begun. In that year the Fairmount Company took over the Clarksburg Fuel Company,⁵ and the Consolidation Coal Company acquired a majority of the capital stock of the Somerset Company for which it paid \$22.50 per share. The final step in this process of combination was the acquisition by the Consolidation Coal Company of a majority of the stock of the Fairmount Coal Company at a price of \$47.50 per share.⁶

Prior to June and July, 1904, the Pittsburg and Fairmount Fuel Company had been shipping coal at the rate of approximately 300,000 tons per year. It sold its tonnage to the Fairmount Company and also secured the use of certain cars from the same company. In the middle of 1904 the Fairmount Company determined to put an end to this relation-

¹ Moody's Manual, 1902, p. 1423.

² Report on Discriminations and Monopolies in Coal and Oil. Interstate Commerce Commission, January 25, 1907, p. 9.

³ Op. cit. Moody, 1902, p. 1658.

⁴ Manual of Statistics, 1902, p. 422.

⁵ Op. cit. Coal and Oil, p. 9.

⁶ Ibid., p. 11.

ship, and shortly after it purchased a majority of the stock of the Pittsburg and Fairmount Fuel Company at one dollar.¹

In 1905, the managers of the Southern Coal and Transportation Company discovered that they were not making much money in their business. This Company owned 4,800 acres of coal lands in West Virginia, but it had been impossible for them to secure sufficient car service from the Baltimore and Ohio Railroad, which, it may be incidentally mentioned, was the owner of 52 per cent of the stock of the Consolidation Coal Company. In consequence of these circumstances, the President of the Southern Coal and Transportation Company, Mr. B. F. Berry, arranged to sell the entire capital stock of the concern together with all its bonds for the sum of \$375,000 to Messrs. Watson and Wheelwright, President and Vice-President respectively of the Consolidation Coal Company. The last named gentlemen upon the completion of this transaction transferred to the Consolidation Coal Company 2,501 shares of the said stock, — a bare majority, — for \$400,000, thus giving to the Consolidation Coal Company control, tho retaining a profit for themselves of \$25,000 in cash and the balance of the stock, 2,499 shares.²

The original holders of the Southern Coal and Transportation Company stock had invested about \$500,000 in the properties, and in consequence lost a considerable amount. It was alleged that the property would have been worth a great deal on the lines of any railroad which furnished equipment adequate to care for the output of coal.³

¹ Op. cit. Coal and Oil, p. 10.

² Ibid., pp. 10-11.

³ Ibid., p. 11.

This final purchase placed in the hands of the Consolidation Coal Company the possession of a large amount of coal lands, and by its ownership of fifty-two per cent of the stock of that concern the Baltimore and Ohio secured the complete control of a large proportion of the coal properties upon its lines. The real object of the Baltimore and Ohio in favoring the purchases by the Consolidation Coal Company of the Somerset and Fairmount Companies is alleged to have been protection of its interest, it being feared that these properties might be acquired by the Wabash Railroad.¹

It may be added that a later railway investigation resulted in the sale by the Baltimore and Ohio Railroad of its interests in the Consolidation Coal Company. In order, however, that the Baltimore and Ohio might retain control of the coal traffic of that company a unique scheme was resorted to. A percentage of the purchase money was to be paid down in cash, and arrangements were made for further partial payments as security for which the stock was placed in the hands of a trustee. The final payment on this stock may be extended for a period of thirty years but the purchaser has no option to pay off the balance until the fixed periods of payment expire. Hence the last of the purchase money cannot be paid until the end of thirty years. The railroad retained a lien for the balance of unpaid purchase money, and by the terms of the contract of sale the Consolidation Coal Company shall ship over the Baltimore and Ohio Railroad alone until all the purchase money for the stock is paid.²

¹ Op. cit. Coal and Oil, p. 13.

² Ibid., pp. 13-14.

V. THE BATH TUB POOL

One of the most recent of our industrial combinations is the Bath Tub pool. The term pool is used advisedly; for while nominally the various members of the combination conducted business under certain patents licensing them to manufacture enameled iron ware, this device, as will be clearly shown, was a subterfuge employed to cover in a measure a form of organization that in essence was merely a manufacturers' association for the purpose of fixing and maintaining prices.

Sometime during the latter part of 1909 or early in 1910 the Standard Sanitary Manufacturing Company and fifteen other corporations and thirty-four individuals,¹—officers, with one exception, of the above corporations, — carrying on a business of manufacturing and dealing in sanitary iron ware, bath tubs, lavatories, sitz and foot baths, wash sinks, drinking fountains, laundry trays, infants' baths, and other articles of a like nature,² entered into a combination which, as charged by the Government, was in restraint of interstate and foreign trade in sanitary enameled iron ware. Outside of the sixteen corporations the only other manufacturers and dealers in commodities of this sort were six in number. The total output of these latter concerns was so much smaller than that of the corporations forming the combination that the independents only controlled 22 per cent of the 250 furnaces in the country, while their output was only

¹ *United States of America v. Standard Sanitary Manufacturing Company and Others.* In the Circuit Court of United States for District of Maryland, Opinion of Court, p. 2.

² *United States v. Standard Sanitary Manufacturing Company and Others.* No. 5163. A True Bill in the United States District Court for the Eastern District of Michigan, November term, 1910, p. 26.

15 per cent of the total output as compared with 85 per cent controlled by the combination.¹ The annual value of the national output of sanitary and enameled iron ware was probably not less than \$10,000,000 and was set by one party at as high as \$14,000,000 annually.

On August 4, 1909, one E. L. Weyman became commissioner or actuary of a newly organized or reorganized Standard Sanitary Enameled Ware Association. To this Association all the corporate defendants belonged except the Kerner Manufacturing Company, and in addition the association was joined by four other concerns which later failed to become parties to the agreements which led to the suit by the United States.² Circular letters sent out by Weyman to the various concerns composing the Sanitary Enameled Ware Association tend to prove that competition from December, 1909, to April, 1910, between the various manufacturers was exceedingly severe and that sometimes goods were sold even below cost.³ One of Weyman's duties appears to have been to do what he could by correspondence to prevent the price-cutting among members of the Association. Cuts of from two and one-half to five per cent below the normal prices were a common thing in the business. Cuts of twenty per cent were not infrequently made.⁴ These conditions of the trade seem apparently to have laid the foundation for the agreements that were shortly after entered into and carried out by combination.

¹ *Op. cit.* Opinion of Court, p. 9.

² *Op. cit.* *United States v. Standard Sanitary Manufacturing Company.* Opinion of Court, p. 14.

³ *United States v. Sanitary Manufacturing Company and Others in the Circuit Court of United States for District of Maryland, No. 17.* On final hearing, Brief for United States, p. 33.

⁴ *Op. cit.* *United States v. The Standard Sanitary Manufacturing Company.* Opinion, p. 14.

A meeting of the members of the Sanitary Enameled Ware Association was held at Pittsburg on February 1, 1910, and was followed by one called together by Weyman in Chicago on March 2. On the 29th and 30th of the same month a two days' convention was held in New York City.¹ There were at this time in use, at least by several of the manufacturers of sanitary enameled ware, three competing patents for certain tools used in the trade known as "the dredger for pulverulent material," "the pneumatic sieve," and "the enameling powder distributor."

These three patents were owned by the Standard Sanitary Manufacturing Company, the J. L. Mott Iron Works and the L. Wolff Manufacturing Company. Tho bearing the above mentioned different names, all were in fact competing² with one another, being used in the process of manufacture for identically the same purposes.³ It is well to bear in mind the fact also that no one of these patents is essential to the manufacture of sanitary enameled ware, tho all are unquestionably useful and valuable.

At the meeting of the trade on February 1st, a resale plan for its products was discussed. At that

¹ Op. cit. *United States v. Standard Sanitary Manufacturing Company*. Brief for United States, p. 30.

² *United States v. Standard Sanitary Manufacturing Company*. Petition in Equity in the United States Circuit Court, District of Maryland, p. 15.

³ In the process of the manufacture of enameled iron ware the ware is at first given a coat of "slush" or enamel in a liquid form. The article is then placed in a furnace and raised to a red heat, by which process the enamel is burnt upon the base. While still glowing with heat powdered enamel is sprinkled upon it and the article is then returned to the furnace. It is usually withdrawn, sprinkled again, and reheated to fuse the enamel. Tho of course the process may be repeated indefinitely, two coats of powder are ordinarily sufficient. After the third reheating the ware is allowed to cool and is then ready for the finishing process.

Before invention of the three devices above referred to, it had been customary to sprinkle on the powder by means of a sieve or sifter to which was attached a handle. The powder was sifted over the surface of the article by tapping on the handle of such sieve or sifter with a piece of iron. Later the handle of the sieve was supported from the ceiling by a counterbalance. In essence the new patents differed from the older unpatented dredges merely in the fact that the tapping was done automatically instead of by hand.

meeting or shortly after an assignment and licensing scheme was also decided upon. It was determined that the three patents should be assigned by the three companies then owning them to E. L. Weyman, each for a nominal consideration and subject to re-assignment after a short period of time at the demand of the assignor.¹ After the Chicago meeting on March 2d, Weyman prepared the rough draft of a licensing arrangement or agreement to be entered into by the various concerns, and on March 30th, the second day of the convention in New York City, a resolution was adopted providing that the matter of a license arrangement and resale agreement should be referred to a special committee of five members to be known as the Price and Schedule Committee. The committee was to interview the various manufacturers and to obtain their consent to the agreement, which was to become binding and effective upon all whenever the consent of 85 per cent of the production had been secured.² On April 8th, the Price Committee, consisting of Messrs. Torrance, Hoelscher, Cline, Barnes, and Gates, went into session at the Colonial Hotel in the town of Mount Clemens, Michigan,³ and sat till the 14th. On the 16th, Weyman was able to inform all of the manufacturers by letter that the Committee had gone into all of the details of the license agreement, making such changes as seemed advisable, and that the manufacturers could expect to receive notice the first week in May of a meeting to be held in New York City for the purpose of executing final license

¹ Op. cit. *United States v. Standard Sanitary Manufacturing Company*. Petition in Equity, p. 15.

² Cf. "Resolution," Exhibit 1, *ibid.*, p. 24.

³ Op. cit. *United States v. Standard Sanitary Manufacturing Company*. November term, 1910. A True Bill No. 5164, in the District Court of the United States for the Eastern District of Michigan, pp. 32-33.

agreement papers. The letter requested that the manufacturers should come prepared to sign the agreements or send such principals as might have the authority to conclude the matter.¹

On the fourth day of May, the Standard Sanitary Manufacturing Company "assigned, sold, and set over" to Edward L. Weyman its patent rights to the Arrott dredger for pulverulent material, subject to reassignment at the end of two years.² On the fifth, the J. L. Mott Iron Works and the L. Wolff Manufacturing Company did likewise with their patent rights to the Dithbridge Pneumatic Sieve and the Lindsay Enameling Powder Distributer respectively.³ Weyman himself possessed no funds and the Standard Sanitary Manufacturing Company loaned to him on May 2d, one hundred shares of its stock upon the security of which he negotiated a loan from a Detroit bank for \$7,000. Upon this amount he then drew checks to the Standard, Mott, and Wolff Companies respectively for \$5,000,⁴ \$350 and \$500, to pay for the rights thus assigned to him.⁵ On the sixth day of the same month, thirteen manufacturers met in New York City and affixed their signatures to the agreement that made the combination effective on June 1st. Subsequently, in May or July, three other manufacturers signed like contracts.

Under the terms of this arrangement the various concerns forming the combination agreed to pay on the sixth day of each month for use of the patents

¹ Cf. Letter of Weyman, Exhibit No. 4. Op. cit. *United States v. Standard Sanitary Manufacturing Company*. Petition in Equity, pp. 32-34.

² "Agreement," Exhibit No. 5, *ibid.*, pp. 35-36.

³ Op. cit. *United States v. Standard Sanitary Manufacturing Company*, No. 17. Brief, p. 34.

⁴ This patent cost the Standard Manufacturing Company, \$35,000.

⁵ Op. cit. *United States v. Standard Sanitary Manufacturing Company*, No. 17. Brief, p. 35.

a royalty of five dollars on each furnace in operation during the preceding month. All furnaces were to be considered as in operation each day unless shut down for more than six consecutive days. The licensee was to send to the licensor a sworn statement showing the number of furnaces owned at the beginning of each month covered by the report and also the number of days in which the furnaces were operated.¹ It was further agreed and understood that the licensee had the privilege of quoting only such additional discounts from the regular selling prices to jobbers as might be established by the licensor.² But in such establishment of prices, the licensor on his part agreed to employ a commission of six persons, of which body he himself should be one, the other five to be designated by a majority of the parties holding licenses. Alone he could make no change in the prices and discounts but could do so only with the approval of the majority of the members of the commission.³ This system, it is interesting to note, greatly resembles that employed by the Cotton Bagging Combination two decades earlier.⁴

At the end of the fourth month of the operation of the new combination, if it appeared that a licensee had maintained the terms of the agreement, he was to be rebated 80 per cent of the royalties which he had paid for the license privilege for the first month only.

¹ "License Agreement," Section 4. Exhibit No. 8. Op. cit. *United States v. Standard Sanitary Manufacturing Company*. Petition in Equity, p. 44.

² *Ibid.*, Section 5, p. 45. Certain of the smaller manufacturers were allowed preferential discounts on sales to jobbers below the selling prices established by the licensor.

³ *Ibid.*, Section 6, p. 46.

⁴ In the Bagging Combination of 1888, L. Waterbury and Company fixed the sales prices at which bagging was to be sold by seven other bagging concerns, parties to the combination. These prices were determined in this case by the majority vote of the seven parties. The Waterbury people had no voice therein. Cf. Contracts A and B of the Bagging Companies, House of Representatives, No. 4165, 50th Congress, 2d Session, pp. 142-144.

At the end of each succeeding month one more month was to be rebated, and failure to comply with the terms of the agreement was punishable by a declaration or forfeiture of any or all of the unpaid rebates. Inasmuch as this system of payments permanently kept the licensor three months' royalties ahead, the penalty might amount in certain instances to a considerable sum of money.¹ The agreement was to continue for two years, but might be terminated under certain conditions either by the licensor or the licensee.²

On June 3d, Weyman addressed the jobbing trade in a letter, the essence of which was that it would be impossible to sell licensed ware to anyone who had not executed the jobbers' contract, a copy of which Weyman was thoughtful enough to enclose.³ The agreement with the jobbers provided that the manufacturers would sell to them at discounts varying from five to seven and one-half per cent from the resale prices which were established in the schedules for licensed ware.⁴ Each schedule, moreover, contained two sets of prices, one for car load and one for less than car load lots, the latter price being five and one-half per cent higher than the former. The country was divided into eleven zones, and the jobber was required to sell at the prices established in a given zone, without reference to the point of purchase.⁵ This part of the arrangement meant that if the jobber sold outside of his own zone he must observe the prices established in the zone in which he sold.

If all the conditions of the agreement were complied with, and the jobber confined his purchases to licensed

¹ "License Agreement," Exhibit No. 8. *Op. cit.* United States v. Standard Sanitary Manufacturing Company. Petition in Equity, pp. 46-47.

² *Ibid.*, Sections 14-15.

³ "Letter to the Jobbing Trade," Exhibit No. 11, *ibid.*, pp. 62-66.

⁴ "Jobbers' License Agreement," Exhibit No. 9, *ibid.*, p. 51.

⁵ *Ibid.*, p. 51.

manufacturers, he was allowed a five per cent rebate,¹ and was also allowed a second rebate for large purchases as follows: — ²

\$10,000.....	2½%	\$25,000.....	4%
\$15,000.....	3%	\$30,000.....	5%
\$20,000.....	3½%		

The jobber further agreed to maintain strictly the resale prices of all ware and not to "purchase, sell, advertise, solicit orders for, or in any way handle or deal in sanitary enameled iron ware of any manufacturer not licensed under the letters patent" ³ above referred to unless he should receive authority from Weyman so to do. Under these contracts Weyman estimated in his statements to the jobbing trade that the jobbing profit would be as follows: —

ESTIMATED PROFITS OF THE JOBBING TRADE ⁴

On Schedules Nos.	Difference between C. L. and less than C. L. Prices	Resale Discount	Discount for maintaining price agreement	Quantity rebates	Total Profit on sales prices
1 and 4	% 5½	% 7½	% 5	% 2½-5	% 19-21
2, 3, 4½					
5, 6	% 5½	% 5	% 5	% 2½-5	% 17-19

Breach of the agreement gave to Weyman the right to cancel immediately the contract with the jobber and all unfilled orders, and to withhold all rebates. Jobbers were expressly given notice that in case of their failure to live up to the terms of their agreement

¹ "Jobbers' License Agreement," Section 7, Exhibit No. 9. *United States v. Standard Sanitary Manufacturing Company*. Op. cit. *Petition in Equity*, p. 53.

² *Ibid.*, p. 53.

³ *Ibid.*, p. 54.

⁴ "Letter to Jobbing Trade," Exhibit No. 11. *United States v. Standard Sanitary Manufacturing Company*. Op. cit. *Petition in Equity*, p. 64.

they could not thereafter obtain ware manufactured under the assigned patents from any licensed manufacturer.¹

Of the three hundred and eighty-nine jobbers whose names were contained in the Blue Book of the jobbing trade introduced as evidence in the suit by the Government, three hundred and forty, or eighty-seven per cent of the total number, signed the jobbers' license agreements, as did also forty-eight smaller jobbers not listed in the book.² It was claimed by the secretary of one of the independent companies that the price list of the combination showed increases of from one to forty-five per cent. This was based upon a tabulation made by him from the manufacturers' official price list.³ The combination had scarcely begun operation before it was attacked by the Federal Government in both the states of Maryland and Michigan, as being in violation of the Sherman Act. On the 13th day of October, 1911, the Circuit Court of the United States for the District of Maryland handed down a decree granting injunctive relief as prayed for by the Government. The Michigan proceedings, criminal in character, are still pending at the time of this writing.

VI. THE NATIONAL CASH REGISTER COMPANY

The National Cash Register Company has been introduced into this study chiefly as a striking example of unfair methods of competition. This corporation has probably, — the Standard Oil Company alone excepted, — been the most predatory in its methods

¹ "License Agreement," Exhibit No. 9, *ibid.*, p. 55.

² *Op. cit.* United States v. Standard Sanitary Manufacturing Company. Brief for United States, p. 45.

³ *Ibid.*, p. 45.

of any of the trusts and combinations whose history is known. Largely through these methods it was able to obtain a monopolistic control over the trade and commerce in cash registers amounting to ninety-five per cent of the total business. The bases of the suit against it by the Government are the allegations of conspiracy, attempt to monopolize, and monopoly.

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About 1882 the National Cash Register Company was organized in the State of Ohio under the name of National Manufacturing Company, for the purpose of manufacturing and selling cash registers. In 1884, or thereabouts John H. Patterson and his associates purchased a majority of its stock and then changed the name to its present title. In 1889 the Patterson interests incorporated a concern of the same name in the State of New Jersey to which were transferred the assets, property, and business of the Ohio concern. In 1906, the present Company was organized by the same interests.¹

The history of the corporation as a corporation has been of an uneventful character and its chief interest lies, as has been stated above, in its strikingly unfair methods of competition. According to the Government's petition, John H. Patterson and the officers of the Company determined definitely as early as 1890 to suppress and prevent all competition whatsoever in the manufacture and sale of cash registers and to monopolize the same.² The chief agency employed for this purpose was a department which was known as the "Competition Department" or the "Ways and Means" Department, also designated by various other titles. It consisted of an active head

¹ United States v. National Cash Register Company. In Equity, No. 6802, in the Circuit Court of United States for Southern District of Ohio. Petition, pp. 10-11.

² Op. cit. United States v. National Cash Register Company. Petition in Equity, pp. 12-15.

with other officers and departmental managers, and employed a force of men whose duty it was, so far as possible, to destroy the business of competitors. These men were known as "knock out" men, and their special duty was to interfere with the negotiations of sale contracts by competitors.¹ Agents were directly hired by the corporations to spy upon business of competitors and to secure any information that they could, reporting the same to the aforesaid department.² Still other agents were entrusted with the duty of securing names of customers of competing concerns, the information being duly utilized to secure the rescission of contracts. Employees of competing firms were bought up, and the agents of the National Cash Register Company were instructed in the use of competing registers so that they might be able to exhibit their defects.³

Cash registers were built by the National Cash Register Company resembling in a general way the registers of competitors. These were utilized for the sole purpose of competition and were sold at ruinous prices, their manufacture and sale being discontinued as soon as the competitor had been eliminated. Whenever a new concern lifted its head these machines were put into the field. At the same time the corporation advertised and offered for sale the registers of competitors at prices below the cost of manufacture and below the actual cost of such machines. The agents of the corporation had secured them from dealers in, and agents of, competing registers, who had been forced out of business, and from merchants who had obtained them of these dealers and agents. In order

¹ Op. cit. *United States v. National Cash Register Company*. Petition in Equity, p. 14.

² Ibid., pp. 14-15.

³ Ibid., p. 15.

to force competing dealers and agents out of business cash register agencies of the National Company were established in the neighborhood of such dealers, and the registers of that corporation were then advertised and sold at such prices as frequently to eliminate rival sellers from the business. Threats of the establishment of these agencies were also made to dealers in competing machines, often causing the withdrawal of the latter from business through fear of financial loss.¹

From time to time the corporation held meetings of its officers and agents at which plans were discussed and formulated looking to the elimination of all competition, and the establishment of a complete monopoly. Agents were furnished with letters of instruction in regard to the obstruction and elimination of the trade of competitors. From time to time there was published by the National Cash Register Company a paper known as the *N. C. R.* which was distributed to its agents as confidential matter. The directions of officers and managers, their speeches and statements, were therein published. Often this paper announced the intention to monopolize the cash register business. Agents were threatened with dismissal, and were dismissed, for allowing competition to exist in their territory.²

A common practice of the National Cash Register Company seems to have been the old one of the operation of bogus independent companies. Concerns would be purchased secretly and maintained in pretended competition with the National Cash Register Company, thus deceiving competitors and oftentimes, — so at least it is alleged, — resulting in the acquisition by the National Cash Register Company from such com-

¹ Op. cit. United States v. National Cash Register Company. Petition in Equity, pp. 18-19.

² Ibid., p. 20.

petitors of much valuable information in regard to the business of the latter.¹

In order so far as possible to forestall competition, the National Cash Register Company has pursued consistently the policy of acquiring new cash register inventions, and it is also alleged that by intimidation the corporation has succeeded in preventing still other inventors from putting their applications upon the market.²

In the factory of the concern at Dayton, Ohio, a display room was maintained known as the "Grave Yard" or "Midway." In this room were exhibited the registers of competing companies which had been eliminated from the field. Display cards gave data showing the name of company, the date of closing out, amount of money lost, etc. Manufacturers, merchants, and other visitors were shown this room and this was one of the prominent features of the intimidation policy employed by the National Cash Register Company.³ Another was the publication and distribution of lists purporting to give the names of concerns eliminated from the cash register business. One list issued in January, 1910, reads in part as follows:—

"Within the past fifteen years, 158 cash register companies have been organized to compete with the National Cash Register Company. Of these, 153 have failed in business. Their combined capital was \$5,735,000. Their combined loss was \$1,970,000. According to the sworn affidavits of its officers, the Boston Cash Register Company alone lost \$192,750.08. Of every 20 cash registers sold, 19 are Nationals." ⁴

¹ Op. cit. United States v. National Cash Register Company. Petition in Equity, p. 22.

² Ibid., p. 22.

³ Ibid., p. 21.

⁴ Ibid., p. 25.

An apparently new method of competition was devised by the National Cash Register Company in the institution of suits at law or equity for the purpose of harassing competitors. These suits, it is alleged, were often entirely unwarranted and unjustifiable. They involved the competitors in heavy expenses the effect of which was to enable the National Cash Register Company the sooner to crush out and eliminate their competition.¹

VII. COMBINATIONS OF WHOLESALE AND RETAIL DEALERS

In considering the Colorado and Wyoming and the Northwestern Lumber Dealers' Associations, the Michigan and the Eastern Retail Lumber Dealers' Associations, the Pacific Coast Plumbing Association, and the Southern Wholesale Grocers' Association, we examine a type of combination radically differing from most of those which we have so far studied. The principal difference lies in the fact that these latter combinations are no longer combinations of manufacturers, but are pools of individuals, firms, and corporations engaged in the wholesale and retail trade.

Speaking in general terms, the lumber trade, like many lines of manufactured goods, passes through three sets of hands before reaching the consumer; that is, manufacturer, wholesaler, and last of all the retailer. Manufacturers of lumber receive that commodity in the form of logs from the forest and saw it into the sizes and lengths required by the trade. The wholesale merchants known as the wholesalers and jobbers purchase the products of this manufacture and distribute it to the retailer. The wholesale

¹ Op. cit. *United States v. National Cash Register Company*. Petition in Equity, p. 23.

merchants are usually located either in or near the large lumber markets, sometimes maintain yards for receiving and storing lumber products purchased from the manufacturers, and sometimes handle shipments of lumber direct from the mills to the retailer, upon receipt of orders from retail customers. In the latter case the jobber in each instance serves merely as an intermediary and does not handle the lumber itself since he maintains no yard. Retailers maintain yards over the entire country at various places, in which are stored supplies of lumber purchased by them to fulfil the demand existing in their various localities.

Besides these three classes engaged in the lumber trade there are the mail order houses, *i. e.*, large commercial houses in various large cities throughout the United States which sell, in addition to other kinds of merchandise, large quantities of lumber. There are also a large number of so-called Farmers' Co-operative Unions and Yards.

Consumers of lumber may be divided into four distinct classes: —

1. The contracting builder or operator in construction work who utilizes lumber in all sorts of such work.
2. The converter who manufactures furniture and "trim."
3. The United States Government and in some cases municipalities and railroads.
4. The small consumer of lumber who uses the same for small buildings, for repair, and for construction work.¹

The method of operation employed by the various retail dealers' associations has been substantially

¹ *United States of America v. E. E. Hartwick and Others. Original Petition in the Circuit Court of the United States for the Eastern District of Michigan, Southern Division, pp. 5-9.*

the same, tho each exhibits some slight variation from the methods of any other. Of the above mentioned combinations engaged in the lumber trade, the Michigan Retail Lumber Dealers' Association is the oldest. It was organized about 1888 or 1889 as a voluntary unincorporated association of the retail dealers within the state of Michigan. The members of the association agreed to and did classify arbitrarily the retail lumber dealers of that state, by providing that any person, firm, or corporation was to be regarded as a legitimate lumber dealer who was regularly engaged in the lumber trade and at all times carried an assorted stock of lumber and "trim" commensurate with the demands of his community (75,000 feet being generally regarded as a minimum), who was in the business for the purpose of selling at retail, and who kept an office during the regular business hours with a person in charge capable of attending to the wants of customers.¹

Any member of the association who considered that he had just cause of complaint against any wholesaler or manufacturer could make complaint in writing to the secretary of the association, giving such information in regard to the shipment as might be obtainable. Exceptions were made in the case of sales to manufacturers where the lumber was actually used by them, in the case of railroads and transportation companies, and finally of "trim" in the case of hardware merchants who kept a regular stock of goods. In all these cases, however, it was understood and agreed that shipments were to be in not less than carload lots.²

¹ Exhibit A, "Constitution of Michigan Retail Lumber Dealers' Association," Article 1, Section 1. Op. cit. *United States v. Hartwick*, p. 43.

² *Ibid.*, Article 2, Section 3, p. 46.

The secretary of the association, upon receipt of complaints, was charged with the duty of notifying the party offending, or if the shipment was made by an agent or broker, was required to take the matter up with his principal.¹ If the offending manufacturer or wholesaler were a member of any association of wholesalers, the secretary took the case up with the secretary of that association, requesting the presentation of the claim to the party complained against and the adjustment thereof. In case of failure to adjust by the efforts of both associations, the claim was to be settled by a board of arbitration of three members. One of these was to be selected by each association and the two in turn selected a third.²

Such complaints were to be made whenever any wholesaler, manufacturer, dealer, or agent should sell to any person not a regular dealer, as defined. Claims were not to exceed ten per cent of the value, at the point of shipment,³ of the lumber so sold. If the settlement of the claim even after arbitration was refused by the manufacturer or wholesale dealer, members of the retail association were forbidden to deal with this manufacturer or wholesaler upon penalty of expulsion from the retail association.⁴ "Commission men" selling to any person not a regular dealer were to be treated as manufacturers or wholesalers, while any wholesaler, dealer, or manufacturer selling to a "commission man" or shipping to persons not regular dealers, was to be held liable as if he himself had made the sale.⁵

¹ "Constitution of Michigan Retail Lumber Dealers' Association," Section 6, pp. 46-47.

² *Ibid.*, Section 8, pp. 47-48.

³ *Cl. By-Laws*, Section 3. *Op. cit.* *United States v. Hartwick*, Original Petition, pp. 50-51.

⁴ *Ibid.*, Section 3, p. 51.

⁵ *Ibid.*, Sections 5 and 6, p. 52.

It was further provided that persons who quoted prices, or sold or shipped to other than regular dealers, in the territories of the association in which such persons had no yards, should be regarded as "poachers," and when they were reported in the membership and notification sheet, they were to be regarded as consumers at points other than those where they might chance to own yards.¹ Wholesalers and manufacturers who made shipments to them in the territory of any member of the retail association were to be regarded as having sold or shipped to a consumer.²

Sometime in 1900 or 1901 the Michigan Association entered into correspondence and conferences with other associations of retail dealers throughout the country as to means of preventing competition between manufacturers and jobbers on the one hand and retail dealers on the other. In March, 1902, as a result of such conferences, the secretaries of the retail lumber dealers' associations throughout the country became a corporation under the laws of Illinois, known as the Lumber Secretaries' Bureau of Information. At that time there were represented in it, besides the Michigan Association, the Union Association of Ohio, the Southwestern and Northwestern Associations, the Indiana Association, and the Illinois Association. It gradually expanded to include many others.³ Not merely was there co-operation between the Lumber Secretaries' Bureau and the Retailers' Associations but there

¹ In other words, retailers were expected to confine their sales to territory immediately surrounding their own yards.

² "Constitution of Michigan Retail Lumber Dealers' Association," Article 3, Section 3, pp. 48-49.

³ *United States v. Colorado and Wyoming Lumber Dealers' Association*, Bill of Complaint in Equity in United States Circuit Court for the District of Colorado, Eighth Judicial Circuit, p. 17. Between 1902 and 1911 this corporation was joined by the following associations: Wisconsin Association, Colorado and Wyoming Association, Nebraska Association, Western Association, Retail Association of Alabama and Tennessee, Mississippi and Louisiana Association, Association of Pennsylvania, Association of Texas, Association of West Tennessee and Kentucky.

was also co-operation with the lumber trade journals, the *Mississippi Valley Lumberman* and the *Scout*. In these papers there appeared from time to time items of information showing shipments of lumber from manufacturers and wholesalers to consumers;¹ the lists, so published, operated as a boycott. Circulars were also issued by these lumber trade publications containing information of a like character and also lists of "poachers."²

About 1904 Luke W. Boyce began the conduct of a detective bureau known as the Northwestern Information Bureau. Boyce was a regularly paid employee of the Northwestern Lumbermen's Association and with a force of assistants was engaged in ferreting out information respecting shipments from wholesalers to consumers. This information was furnished to the association employing him, which in turn furnished it to the Lumber Secretaries' Bureau of Information and the Mississippi Valley Lumbermen.³

Substantially identical in character and purpose with the Michigan Association were the Northwestern Association and the Colorado and Wyoming Association. It is necessary to go a step further, however, and examine the interesting methods and machinery employed by these lumber combinations in the prosecution of the campaign against the "unethical shipments" above described. In June, 1909, the American Lumber Trade Congress held a meeting in Chicago and there drew up a code of ethics which was intended to

¹ Cf. *op. cit.* *United States v. Hartwick*, Original Petition, pp. 29-30, and also *United States v. Willard G. Hollis and Others*, Petition in Equity in the Circuit Court of the United States for District of Minnesota, p. 39, and *United States v. Arthur L. Holmes*, Indictment No. 4750, in the District Court of the United States for the Northern District of Illinois, pp. 17-20.

² *Ibid.*, *United States v. Willard G. Hollis*, pp. 59-62; *United States v. Holmes*, pp. 26-34.

³ *Op. cit.* *United States v. Hollis*, p. 54.

govern all branches of the lumber trade in selling, except as to sales by the retailer to the consumer. The code of ethics provided that "unless a buyer is rated and in good standing, as shown by the well known lumber credit agencies, no orders shall be binding on the seller unless such credit and good standing shall have been satisfactorily proven to the seller."¹

This practically confined the rating of all buyers of lumber and lumber products to the "Red Book" and the "Blue Book" which are published, the one in Chicago, and the other in St. Louis.² What this resulted in was simply that a buyer's name appeared in either of these rating books as a retailer whenever in fact he was a consumer, mail order house, or farmers' co-operative association, since the retail associations would insist upon such a buyer's name being stricken from the list or else that he should be designated as a consumer.³

The operation of the Eastern States Retail Lumber Dealers' Association was somewhat different from that of the three combinations in the Lumber Trade just considered, tho the principle involved was precisely the same. In the case of the Eastern Organization, the methods were less complicated and the general operation much simpler than in the western and middle western associations. This was due to the system of close co-operation existing between the wholesalers and the retailers in the former case.

¹ Op. cit. *United States v. Hartwick*, Original Petition, pp. 19-20.

² The "Blue Book" is published by the National Lumber Credit Manufacturers' Corporation, a corporation of the State of Virginia, the stock of which is either owned or fully controlled by this association, which is composed of fifteen or more of the largest manufacturers' associations of the United States. The "Red Book" is published by the Lumberman's Credit Association, a corporation of the State of Illinois. Cf. *United States v. Willard G. Hollis and Others*. Petition in Equity in the Circuit Court of United States for District of Minnesota, p. 34.

³ Op. cit. *United States v. Hartwick*. Original Petition, pp. 20-21.

The Eastern States Retail Dealers' Association was organized in New Haven in September, 1902, and became a membership corporation under the laws of the state of New York in October of the same year. Its membership was composed of retail lumber dealers who were elected as representatives and delegates of various state lumber trade associations in the eastern states. The objects of the state organizations varied somewhat, but in general it may be said that they were to prevent so called "unethical" shipments by means of classification such as was used in the west.¹ The National Wholesale Lumber Dealers' Association is a membership corporation of the state of New York, and is composed of manufacturers, wholesale and retail houses, and jobbers, operating in all the states east of the Mississippi River and also in California and Canada.²

Before the formation of the Eastern Association, there had been on the part of various associations later composing that corporation and some of the western associations as well, combinations to secure, in conjunction with the National Associations of Wholesalers, such a classification of the lumber trade as would operate to confine the trade of the consumer to the retailer and that of the retailer to the wholesaler. As early as 1899 the Boston agreement was adopted by certain retail associations and the National Wholesale Association, authorizing the latter to formulate rules of classification of lumber dealers as follows: —

1. Manufacturers.
2. Wholesale dealers and agents.
3. Retail dealers and other legitimate customers of the wholesale trade.

¹ *United States v. Eastern Retail Lumber Dealers' Association*. Original Petition in United States Circuit Court for the Southern District of New York, pp. 18-19.

² *Ibid.*, p. 37.

The classification was to be made along the lines of the rules of the trade in the various states, and arbitration was provided for in the case of the failure of the wholesaler and the retailer to agree.¹ It was also voted that the National Association take up and consider the evils from which the lumber trade was suffering, viz.: —

1. Sales by manufacturers to consumers.
2. Sales by brokers, etc., to consumers.
3. Sales and quotations by so-called retail dealers to consumers through agents and by methods used by the wholesaler in soliciting trade from the wholesalers.

It was further agreed that the National Association devise a plan that would, with the co-operation of the Retail Associations, control such individuals and concerns as well as a plan whereby those reported by the state association as selling to consumers, should be reported both to the wholesale trade and manufacturers and required to conform to legitimate methods of business. Yet another resolution provided that in case the National Association was able to comply with these requests, retailers would, so far as possible, pledge themselves to buy only of the National Wholesalers' Association.²

Subsequently at the meetings of 1900 and 1901 the Baltimore and Pittsburg amendments to the Boston agreement were passed, providing for a joint classification and embodying provisions tending to strengthen the co-operation between the parties to the agreement.³

¹ *Op. cit.* *United States v. Eastern Retail Dealers' Association*. Cf. Exhibit F, Boston Agreement, pp. 80-81.

² *Ibid.*, pp. 80-81.

³ Cf. Agreements, *op. cit.* *United States v. Eastern Retail Dealers' Association*, pp. 83-87.

In 1903, the Boston agreement was nominally withdrawn as a result of disagreement between the Eastern Retail and National Wholesale Associations in regard to classifications,¹ but in spite of this fact the retail associations continued to classify and the National Association continued to accept their classifications throughout 1903 and 1904. All available documents tend to prove that such co-operation has continued to exist between the two associations down to the present time.

Information furnished by officers of the retail associations was published and circulated by the National Wholesalers' Association in a publication called "List C" which was issued periodically up to about September 25, 1907, when it was discontinued. The information contained in this list, however, continued to be furnished by the National Association to dealers upon application. The object of the list and information was to prevent sales by wholesalers to anyone upon the list. Information in regard to concerns placed upon this list, and after its discontinuance enumerated in the letters sent out by the National Association, was obtained by correspondence and by circulars addressed to various retailers' associations.²

In 1908 at the Washington meeting of the National Wholesalers' Association a resolution was adopted to the effect that the relations established by the Boston agreement in regard to classifications should be continued so far as consistent with a fair consideration of all interests involved.³ The National Association from time to time issued circulars listing and publishing persons reported by retail associations, which

¹ *Op. cit.* *United States v. Eastern Retail Dealers' Association*, pp. 45-49.

² *Ibid.*, pp. 50-51.

³ *Ibid.*, p. 53.

were known as "Yes" and "No" lists from the fact that they were merely lists of names with one or the other of these words at the bottom, and constituted statements as to whether or not such concerns as were enumerated should be regarded as legitimate retail dealers.¹

In its most essential details the Pacific Coast Plumbing Supply Association differs but little from the Lumber Trade Associations just described. Its existence dates from about the first of January, 1907.² In its restraint of trade it made extensive use of the "Blue Book" of the Plumbing Trade. Members of the combination refused to order or to buy from such manufacturers of plumbing supplies as sold or shipped to persons in Washington, California, and Oregon who were not members of the association and listed in the said "Blue Book." This book in all essential respects corresponded to the "Red" and "Blue Books" of the Lumber Trade. It contained arbitrary definitions of a manufacturer and a jobber, and the list was presumed to inform all the manufacturers who were the legitimate jobbers of plumbing supplies.³

The Pacific Coast Association further exercised an arbitrary discretion as to what individuals and concerns engaged on the Pacific Coast in the plumbing supply business should be regarded as jobbers. Ratings as such could only be obtained with the consent of a majority of the jobbers belonging to the association who were doing business in any locality where the given individual or concern desired to take up its location. This power, it is alleged, was used arbi-

¹ Op. cit. *United States v. Eastern Retail Dealers' Association*, p. 54.

² *United States v. Pacific Coast Plumbing Supply Association and Others*. In the Circuit Court of United States for the Southern District of California, *Petition in Equity*, p. 11.

³ *Ibid.*, pp. 13-14.

trarily solely in order to prevent any increase in the number of jobbing houses in these states.¹

In like manner as the lumber dealers utilized the Lumber Secretaries' Bureau of Information for a similar purpose, the National Committee of the Confederated Supply Association, and its officers and agents, were made use of to disseminate information among the members of the association, and also among manufacturers, relative to those manufacturers who sold to persons and concerns in the states of California, Washington, and Oregon and were not members of the Plumbing Association.² The matter of such shipments was reported by the Secretary of the Association, and the Secretary of the National Committee then took up the matter with the manufacturer.³ Through these methods the Government alleges it was possible for the Pacific Coast Association to control 90 per cent of the jobbing trade in the states of California, Washington, and Oregon.⁴

The Southern Wholesale Grocers' Association made use of the "Green Book" published by the Association and entitled *Official List of the Wholesale Grocers of Alabama, Arkansas, District of Columbia, Florida, Georgia, Indian Territory, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia* — for the same purpose as the plumbing jobbers' combination utilized the "Blue Book." The Grocers' Combination also apparently endeavored to fix a limited selling price at which a commodity might be sold, and to secure the agreement of manufacturers to set such a limited selling price. The jobbers then demanded of the

¹ Op. cit. *United States v. Pacific Coast Plumbing Supply Association and Others*, p. 14.

² *Ibid.*, pp. 16-17.

³ *Ibid.*, pp. 16-17.

⁴ *Ibid.*, p. 15.

manufacturers rebates for the maintenance of such prices.¹ On October 17, 1911, a decree of injunction, to which all parties consented, was handed down in the Circuit Court of the United States for the Northern District of Alabama, enjoining the Southern Wholesale Grocers' Association from the continuance of such methods.

VIII. CONCLUSION

So much stress has been laid upon the Tobacco and Standard Oil decisions, so much emphasis given to the fact that the dissolutions of these two great combinations have left them in practically the same situation as before, that other suits brought by the Government have been completely overshadowed. To those obsessed with the idea that combination is a natural phenomenon and that competition is essentially anarchical and *ipso facto* undesirable, and to those who desire the repeal or amendment of the Sherman Act, the method of dissolution employed in the case of these conspicuous corporations is a proof of the impossibility of real competition, the absolute necessity of combination, and the general uselessness of the Sherman Act. While not in the least denying the existence of the tendency to co-operation in business, it is the belief of the writer that the fundamental basis upon which it rests is unreasonable restraint of trade. In other words, if the Sherman Act can eliminate certain piratical and predatory methods of competition, a large proportion of the "natural" tendency toward combination would dissolve into the thin air.

¹ United States v. Southern Wholesale Grocers' Association et al. In Equity, No. 205. In the Circuit Court of the United States for Northern District of Alabama, Decree of Injunction, pp. 5-7.

It is largely for the purpose of throwing light upon this question of combination versus competition that the present article has been written. Are all of the members of the group just described examples of a natural tendency, or in some cases is the basis of their existence to be found in altogether different circumstances? If, as the writer believes, a very large proportion of the tendency to combination rests not upon the natural desire to co-operate but rather upon an equally natural desire to make money at whatever cost, the argument in favor of combination becomes certainly less strong. Somebody has remarked that the way to enforce a law is to put some one in jail. There may be a germ of truth in this argument. At any rate, why not give enforcement and strict enforcement of the Sherman Act under the "reasonable" ruling of the Supreme Court a thoro trial?

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HENRY C. CAREY'S ATTITUDE TOWARD THE RICARDIAN THEORY OF RENT

SUMMARY

Carey's four arguments against Malthusianism, 644. — Effect of environment on his thought, 647. — Relationship of wealth, utility, capital, value, and cost of reproduction, 648. — The two arguments on rent: (a) Land is capital, rents grow proportionately less; (b) The natural order of cultivation, 651. — Three possible interpretations of Carey on returns, 659. — An argument by the writer on interrelationships in the problem of proportionality, 666. — Carey and Ricardo on returns, 669. — Conclusion, 671.

THE Ricardian theory of rent met an earnest, honest, and forcible critic in H. C. Carey. Carey was radical, bold, sweeping, and dogmatic. He made a spirited tilt against Ricardian rent and seemed in his happiest vein when replying to his dearest foe, Mr. Malthus.

The purpose of this paper is to present briefly Carey's theory of rent and to contrast the views of these famous economists, especially on diminishing returns. The present writer finds, contrary to the general opinion, that Carey never denied the theory of diminishing returns in the sense that Ricardo taught it.

In order to follow Carey's criticism of Ricardian rent I shall briefly review Carey's arguments on population. Carey overlooked the social phenomena that followed the Second Hundred Years' War between England and France. He claimed that the origin of the theory of population that Ricardo had in mind, Malthusianism, was to be found in the commercial policy of England.¹ Following in the lead of the

¹ Carey, *Principles of Social Science* (Philadelphia, 1888), vol. i, p. 464.

American economists, Rae,¹ Wayland,² Vethake,³ Cardoso,⁴ and Phillips,⁵ also Senior⁶ in England, Mr. Carey argues at length to prove that Malthus' geometrical and arithmetrical ratios are impossible.⁷ God in his all-goodness, reasons Carey, provides for man. He admits that men perish. This, however, is not due to the niggardliness of nature, but to the insufficiency of men.⁸

Chemistry teaches, he argues, that a dense population is necessary for the well-being of man.⁹ Space will not permit a full presentation of his arguments under this head of his discussion. Because of the increase in population, the growth of association, capital, and skill, which result, will cause the land to yield more food; and by reason of a law of substitution which accompanies the advancement of civilization, man comes to have less need for the products of the land. Man becomes more and more dependent on plant life. Plants, on their side, must have carbonic acid gas, which is furnished them by the breath of animals. A dense population will supply the needed animal breath, and animals, a discordant element in his principle of association, will gradually disappear. Thus, man producing the carbonic acid gas and plants the oxygen, give us an example of that "perfect" economic harmony which runs through his writings.

Carey's last and most important argument is that

¹ Rae, John, *The Sociological Theory of Capital* (N. Y., 1906), p. 392.

² Wayland, F., *Elements of Political Economy* (Boston, 1859), p. 302.

³ Vethake, Henry, *The Principles of Political Economy* (Philadelphia, 1838), p. 116.

⁴ Cardoso, J. N., *Notes on Political Economy* (Charleston, S. C., 1826), pp. 35-36.

⁵ Phillips, Willard, *A Manual of Political Economy* (Boston, 1828), p. 139.

⁶ Senior, N. W., *Two Lectures on Population* (London, 1831), Lec. II, pp. 46-52.

⁷ *Social Science*, vol. iii, p. 267, and *ibid.*, pp. 340-350.

⁸ *Ibid.*, p. 350.

⁹ *Ibid.*, pp. 319-320. Cf. *ibid.*, vol. ii, p. 209 — vol. iii, pp. 315-318, 325-327.

man's cerebral and reproductive functions become antagonistic through development. Population is self-regulative. The power to maintain individual life and the power to propagate the species must vary inversely if over-population be avoided. If a race continues to exist, the forces destructive of it and the forces preservative of it must tend toward equilibrium.¹

In this argument we find Carey's ultimate check to over-population. To read only his first three arguments, one concludes that Carey had in mind no conceivable limit to the propagation of man. Economic historians have, for the most part, overlooked his claim that population is self-regulative. Professor Roscher, for example, maintained that Carey had in mind no check to over-population and cited Carey's *Past, Present, and Future* and *Principles of Social Science* to substantiate his contention.² It is true that when, in 1848, he wrote his *Past, Present, and Future*, he had not developed the argument and frankly stated that "the time may arrive when the world will be so fully occupied that there will not be even standing room."³ But between 1848 and 1858-59, the date when he brought out his *Principles of Social Science*, appeared Herbert Spencer's famous article on population⁴ (1852), which supplied Mr. Carey with an ultimate check to over-population, thus rounding out his theory.⁵ Carey's argument is that there is no minimum of subsistence margin, nor any over-population problem.⁶

¹ Op. cit., vol. iii, chap. 46.

² Roscher, *Principles of Political Economy* (Chicago, 1882), sec. cdxiii, note 1.

³ *Past, Present, and Future* (Philadelphia, 1848), p. 77.

⁴ A Theory of Population, deduced from the General Law of Animal Fertility, *Westminster Review*, April, 1852.

⁵ *Principles of Social Science*, chap. 46.

⁶ Professor Haney says that Carey preceded Spencer in this theory. — *History of Economic Thought* (N. Y., 1911), p. 247. Professor R. E. Thompson also makes this mistake. — *Stoddard's Encycl., Amer. supplement to Encycl. Brit.*, vol. i, p. 722.

In connection with these arguments it may be noted that Carey's American environment was not in conformity with the Maltho-Ricardian formula. Carey wrote voluminously on economic subjects from 1835 to 1879. The achievements of this period in American industrial history were unprecedented. The growth of population and wealth, of factories and industries, of invention and skill was immense in the development of material civilization. During the twenty years following 1830, our railroad mileage grew from 23 miles to 9,021 miles, and the railroad centre was Philadelphia, where lived Carey and most of his American followers. The growth of the agricultural industry was rapid because of superior methods and inventions, increasing population, and manufactures which furnished home markets, good prices for farm products, and division of labor and skill. With the growth of capital and the increase of population was acquired power that enabled society to appropriate the low and swampy but more fertile lands of the valleys.

Conditions encouraged Carey's native optimism, and he gave out the opinion that progress was the normal law of economic life. For the orthodox concept of diminishing returns he substituted the concept of increasing returns over a long period of time. He reversed the order of cultivation as taught by Ricardo. His writings reflect his environment. There was not a time during his career when a larger population would have been undesirable. Increasing numbers were an indication of prosperity. Considering these facts in conjunction with his native optimism, we have a reason for his denial of Malthusianism. That Carey was ultra-optimistic is generally recognized, and I have mentioned this as a reason for his opposition to the teachings of Malthus and Ricardo. Differences

of opinion often find their origin in differences of temperament. The scientist, as such, reaches conclusions only through impersonal reasoning. Man, considered as man, too often has his conclusions biased by his own temperament. The difficulty is that the scientist and the man are inseparable. There being two sides to most questions, there is opportunity for the human element to load the evidence in favor of this contention or that. Ricardo was pessimistic, Carey was optimistic. Ricardo loaded the evidence by the English conditions of 1815; Carey loaded the evidence by the American conditions of 1848.¹ Having mentioned his arguments on population, as well as the industrial and personal conditions that influenced them, I shall follow his approach to the rent problem a little further by briefly presenting certain concepts that are of the substance of the problem itself.

Carey, as we shall see, regards land as a form of capital, and makes rent virtually synonymous with interest.² Rent and interest find their origin in the conflict, so to say, between the power of nature's control over man and the power of man's control over nature. In proportion to other shares of the *distribuendum*, rent and interest are high when nature's control is stronger and low when man's control is stronger.

Concepts having to do with man's control over nature are wealth, utility, and capital. "Wealth

¹ The following references help one to appreciate the attitude of early America on population: —

(a) Franklin, *A Select Collection of Scarce and Valuable Economical Tracts* (ed. by J. R. McCulloch. London, 1859), p. 215.

(b) Smith, Adam, *Wealth of Nations* (Cassan ed.), vol. i, p. 72.

(c) Everett, A. H., *New Ideas on Population* (Boston, 1826), chaps. 2-3.

(d) Senior, N. W., *Two Lectures on Population* (Oxford, 1828 — printed London, 1831), p. 49.

(e) Marshall, A., *Principles of Economics*, 1910, pp. 321-322, note.

² *Principles of Political Economy* (Philadelphia, 1837), vol. i, pp. 129, 130.

consists in the power to command the always gratuitous services of nature."¹ "Wealth grows with the growth of man's power over nature. The more that growth the more feeble becomes nature's resistance, and the greater is the tendency toward acceleration of progress in the further growth of wealth."² "The utility of things is the measure of man's power over nature."³ "Capital is the instrument by means of which that mastery is acquired."⁴ In what does capital consist? Carey says, "At one moment in the form of food; at another, in that of physical and mental force; and, at a third, in that of bows, arrows, canoes, ships, lands, houses, furnaces, and mills."⁵ He speaks of "further accumulation of capital in the form of that higher intelligence."⁶ Capital, then, is both objective and subjective. Carey is obscure on this point. He considers interest a payment for the use of capital. Land is capital, so it would seem that a payment for the use of land would be interest. Rent, however, is spoken of as a payment for the use of land; so rent and interest would be the same, — interest on land would be rent. Man also is capital. Why, then, would not wages be interest? Wages

¹ *Principles of Social Science*, vol. i, p. 186. In his miscellaneous works the article "Wealth: of What does It Consist?" The term thus: "Wealth consists of the power to command the services of the always gratuitous forces of nature" (pp. 5-6). Further, "Of all tests of the growth of wealth the most certain is that which is found in the comparative power of a people for the production and consumption of iron." (*Ibid.*, pp. 10-11.) His environment in Philadelphia possibly had something to do with his exalted opinion of the iron industry and his advocacy of protection. The poet Bryant thought Carey's opposition to orthodox economy was due to mercenary motives. (Carey's miscellaneous works — article, *Financial Crises: their causes and effects*; Bryant quoted pp. 15-16.) T. E. Leslie thought Carey's economy as much a product of Pennsylvania as was its iron and coal. (*Fortnightly Review*, vol. xxxiv, 1890, p. 503.) Professor Perry was of the same opinion as Leslie. (*Political Economy*, 18th ed., p. 83.)

² *Miscellaneous Works*. Article, "Wealth: of What does It Consist?" p. 11.

³ *Principles of Social Science*, vol. i, p. 179.

⁴ *Ibid.*, vol. iii, p. 50.

⁵ *Ibid.*

⁶ *Ibid.*

and interest, however, are regulated by different laws. They move up or down in opposite directions. These remarks are justified by statements throughout his works and by criticisms of him on his confusion of terminology.

Concepts having to do with nature's control over man are value and cost of reproduction. "Value is the measure of the resistance to be overcome in obtaining those commodities or things required for our purposes — of the power of nature over man."¹ In the same chapter we are told that the idea of value "is simply our estimate of the resistance to be overcome, before we can enter upon the possession of the thing desired."² This chapter contains expressions of which the following are characteristic; "what are the things to which he attaches the idea of value?" "He attaches no value to the light," "How much is the value he attaches to the chair upon which he sits?" etc., etc.

One of the above definitions is subjective and the other objective. The relative values of commodities are determined by their labor cost of reproduction. "In exchanging, the most obvious mode is to give labor for labor."³ For short, value : value :: labor cost of reproduction : labor cost of reproduction.⁴

His greatest confusion comes from attributing value to man. Of the utility of man he says, "The greater that utility, the higher is his own value, and the less that of the things he needs. The cost of reproduction

¹ *Principles of Social Science*, vol. i, p. 158.

² *Ibid.*, p. 148.

³ *Ibid.*, p. 151.

⁴ Marshall makes Carey's value a money cost of reproduction concept. Carey himself, on the value of a good, spoke of the human effort required for its reproduction (Cf. Marshall, *op. cit.*, p. 401, Carey, *Principles of Social Science*, vol. i, p. 151.) Marshall says normal cost of reproduction and normal cost of production are convertible terms. (*Ibid.*, p. 401.)

steadily declining, he himself as steadily rises, every reduction in the value of existing capital being so much added to the value of the man."¹ "The value of man, like that of all other commodities and things, is measured by the cost of reproduction, and not by that of production."²

These statements are not in harmony with value as nature's control over man. They indicate that value is man's power over nature. How does this differ from wealth, man's power over nature? How does the idea that a greater utility in man means a higher value in man harmonize with "the two (value and utility)³ thus move in opposite directions, and are always found existing in the inverse ratio of each other"?⁴ Inconsistencies such as these confuse the argument. Yet the general relationship seems to be that value is nature's power over man and that it is limited by cost of reproduction. Wealth is man's power over nature, utility is the measure of this power, and capital consists in the means or instruments which give this power.⁵

Since rent is a payment for the use of land, it is proportionately high or low as the value of the land is high or low. This leads us to the rent problem.

He presents two arguments on rent:⁶ (a) Land is capital, rents grow proportionately less; (b) The natural order of cultivation is from poor land to rich.

¹ *Principles of Social Science*, vol. iii, p. 111.

² *Ibid.*, p. 130.

³ Parentheses mine.

⁴ *Principles of Social Science*, vol. i, p. 179.

⁵ Roscher, *Principles of Political Economy*, vol. i, sec. 5, note 4.

⁶ *Principles of Social Science*, vol. i, p. v. Speaking of his work of 1837, Carey said of himself, "He had already satisfied himself, that the theory presented for consideration by Mr. Ricardo, not being universally true, had no claim to be so considered; but it was not until ten years later that he was led to remark the fact that it was universally false."

First. Land is capital. The clay through which the farmer guides his plow is subject to exactly the same law as when it has passed through the potter's hands and has been converted into china and earthenware. It is a universal law that governs matter.¹

"If we can show that the land heretofore appropriated is not only not worth as much labor as it has cost to produce it in its present condition, but that *it could not be reproduced by the labor that its present value would purchase*, it would be obvious to the reader that its whole value is due to that which has been applied to its improvement."² Again, "There is not, throughout the United States, a county, township, town, or city, that would sell for cost; or one whose rents are equal to the interest upon the labor and capital expended."³ Quotations and arguments from his works might extend over pages, — all to the effect that capital in land differs in no respect from that invested in machines. In fact, President Walker remarks that, "The trouble with Mr. Carey's argument is its superabundance of proof."⁴ In other words, before appropriation, land is a free good, like air and water. Its value is due to the labor employed in its appropriation and improvement.⁵ "Improvements" is broad enough to include roads, canals, churches, and the like.⁶ Land being capital, rent is only a form of interest. As progress, invention, and skill advance, the cost of reproduction declines. Therefore rents proportion-

¹ Principles of Social Science, vol. i, p. 164.

² Principles of Political Economy, vol. i, p. 102.

³ Past, Present, and Future, p. 60; almost the same wording in Principles of Social Science, vol. i, p. 168.

⁴ Land and its Rent, p. 77.

⁵ Principles of Political Economy, vol. i, pp. 129, 130.

⁶ Principles of Social Science, vol. i, p. 168.

ately decline; proportionately, of course, to the products of the land.¹

Second. The natural order of cultivation is from poor to rich soils, from the dry, sandy soil of the hillside to the rich lands of the valley. Since this argument is aimed at Ricardo, we will give it as follows: (1) Inconsistencies of Ricardo, (2) Why Ricardian rent is generally accepted, (3) It depends on a single supposition, (4) Statement of Carey's argument, (5) Deduction: rent proportionately declines.

After an introduction replete with irony as to Ricardo's "great discovery," he turns to the college professors and compares them to the followers of Mohamet in regard to the Koran. Their insolvable task is to determine what it is they are required to believe. Those who follow Ricardo are economists *par excellence*, anything short of absolute faith in him is heresy, worthy of excommunication, contemptible. The professor "having studied carefully the works of the most eminent of the recent writers on the subject, and having found no two of them to agree, he turns, in despair, to Ricardo himself, and there he finds, in the celebrated chapter on rent, contradictions that cannot be reconciled, and a series of complications such as never before, as we believe, was found in the same number of lines. The more he studies, the more

¹ Doubtless J. S. Mill and F. A. Walker are the strongest, at least among the strongest, critics of Carey's cost of reproduction concept. Mill omits cost of reproduction in his criticism of the point. Take this from his argument and Carey himself would not recognise it. J. S. Mill, *Principles of Political Economy* (Ashley ed., London and New York, 1909), pp. 430-432. See Macleod, *The History of Economics*, London [1896], pp. 590-592 on self contradiction of Mill on rent. Walker makes the stronger criticism (*Land and its Rent*, pp. 75-88). In a later work this author advocates cost of reproduction. He speaks of it as "beyond the reach of discussion." (*International Bimetallism*, N. Y., 1897, pp. 25-29.) Professor J. W. Jenks expressed the opinion that Carey's theory of a constant decline in value, including agricultural products, is that he had in his mind's eye the United States where, due to free and abundant fertile lands, agricultural produce had still a low cost of production. (Jenks, *Henry C. Carey als Nationalökonom*, Jena, Fisher, 1885, pp. 30, 31.)

he is puzzled, and the less difficulty does he find in accounting for the variety of doctrines taught by men who profess to belong to the same school, and who all agree, if in little else, in regarding the new theory of rent as the great discovery of the age." ¹

Why Ricardo's Theory is generally accepted. "At first sight, it looks, however, to be exceedingly simple. Rent is said to be paid for land of the first quality, yielding one hundred quarters in return to a given quantity of labor, when it becomes necessary, with the increase of population, to cultivate land of the second quality, capable of yielding but ninety quarters in return to the same quantity of labor; and the amount of rent then paid for No. 1 is equal to the difference between their respective products. No proposition could be calculated to command more universal assent. Every man who hears it sees around him land that pays rent. He sees that that which yields forty bushels to the acre pays more rent than that which yields but thirty, and that the difference is nearly equal to the difference of product. He becomes at once a disciple of Mr. Ricardo, admitting that the reason prices are paid for the use of land is that soils are different in their qualities, when he would, at the same moment, regard it as in the highest degree absurd if any one were to undertake to prove that prices are paid for oxen because one ox is heavier than another; that rents are paid for houses because some will accommodate twenty persons and others only ten; or that all ships command freights because some ships differ from others in their capacity." ²

Ricardo's whole theory is based upon a single supposition. After reducing the theory to six brief state-

¹ Past, Present, and Future, pp. 17-18 (quotation from p. 18).

² Ibid., pp. 18, 19.

ments, he (Carey) says, "It will be perceived that the whole system is based upon the assertion of the existence of a single fact, *viz.*, that in the commencement of cultivation, when population is small, and land consequently abundant, the soils capable of yielding the largest return to any given quantity of labor alone are cultivated. That fact exists or it does not. If it has no existence, the system falls to the ground. That it does not exist; that it never has existed in any country whatsoever; and that it is contrary to the nature of things that it should have existed, or can exist, we propose now to show."¹

So much for Ricardo's single supposition and what Carey proposes to show. What is Carey's argument on the point? He reverses the Ricardian order of cultivation. In the first settlement of a new country Ricardo thinks that No. 1, the 40 bushels to the acre tract, would be first occupied. When population multiplies to the extent that it is necessary to cultivate No. 2, then rent begins on No. 1 — the rent being the difference between the two or 10; and so on.

In the first settlement of a new country Carey thinks that the poorest tract, say No. 5, will first be occupied, and with the growth of population and wealth 4, 3, 2, and 1 will successively come into cultivation. Carey's reasons are that the richer lands offer greater resistance than half-civilized men, or needy colonists, or the few new settlers in a virgin land with small capital and no organization, can overcome. The most fertile lands are covered with dense forests, among the most general difficulties are swamps or marshes, bogs and malaria. Through the growth of population, capital, and association such power over nature is acquired as will make possible the utilization of the most fertile soils.²

¹ Past, Present, and Future, p. 23.

² *Ibid.*, chap. 1; also Principles of Social Science, vol. 1, chaps 4, 5.

From this it follows that constantly increasing returns result, and "there is a steady diminution in the proportion of the population required for producing the means of subsistence, and as steadily an increase in the proportion that may apply themselves to producing the other comforts, conveniences, and luxuries of life."¹

Continuing, we find that, "Rent is paid for the improvements which labor has accomplished for, or on, land, and which constitute items of wealth. Wealth tends to augment with population, and the power of accumulating further wealth increases with constantly accelerating pace as new soils are brought into cultivation, each yielding in succession a larger return to labor. Rent tends, therefore, to increase in amount with the growth of wealth and population,"² etc. But while there is an increase in the amount of rent, it must be remembered that rent, or the price charged for the use of land, like prices of all commodities and things, is but compensation for the results of past labor. As cost of production becomes less, prices are lowered. Therefore, tho total rents increase, rent as a share of the produce of land decreases proportionately.³

So much for Carey's arguments on rent and the relation of rent to kindred problems. I shall conclude with a comparison of these writers, hoping thereby that Carey's attitude toward Ricardo may be better understood.

Ricardo lived in pessimistic England at the close of the Second Hundred Years' War with France;

¹ *Past, Present, and Future*, p. 25.

² *Ibid.*, p. 62.

³ *Principles of Social Science*, vol. i, p. 164.

Carey lived in optimistic America during her golden age of prosperity after 1837. The first wrote in the England of 1817; the second wrote in the America of 1848. Ricardo was pessimistic — things would have been better if they had not been so bad; Carey was optimistic — things will be better because nature is so good. The first accounted for misery through the niggardliness of nature; the second accounted for misery through the fault of man. Ricardo was a free-trader; Carey was a protectionist. The Malthusian law of population and the Ricardian theory of rent rest on one and the same hypothesis; the limited supply and diminishing productiveness of land in its relation to human fecundity with undiminishing power. Carey's doctrine of population and theory of rent are based on the principle of an increasing supply of land in its relation to human fecundity, — that fecundity diminishing with the development of man. With Ricardo, labor accounts for the value of most man-made goods; with Carey, labor accounts for the value of land and other goods. Ricardo's order of cultivation was from rich land to poor; Carey's order of cultivation was from poor land to rich. Ricardo's rent concept is static; tho he taught historical diminishing returns, his formula can serve only for measuring static or unalterable conditions. Carey's rent concept is dynamic, he looks upon society as progressive, multiplying in inventions and skill and increasing its returns as it grows. Ricardo regarded land as a distinct factor of production; Carey regarded land as capital. With Ricardo, rent is a differential surplus above a no-rent margin; with Carey, rent is interest on capital in the form of land. The first thought that improvements caused a decrease in total rent; the second thought that improvements caused

an increase in total rent. Ricardo taught that rent increased while labor received less and less on a declining margin; Carey taught that rent proportionately declined while labor received proportionately more and more on a rising margin. To one increased numbers meant diminishing returns and rising rents at the expense of profits and wages; to the other increased numbers meant increasing returns and rising wages at the expense of rents and profits. Both were successful business men. Neither was a college man. Either ranked as the strongest contemporary economist of his nation. After all, the fundamental, the one point between Carey and Ricardo, in this connection, is diminishing returns. It is true that Carey said "no" when Ricardo said "yes"; Carey considered his doctrine the direct opposite of that taught by Ricardo. Differences in the order of cultivation present no fundamental distinction in this question. The philosophy of Ricardian rent refers to lands under cultivation at the same time. Recent studies justify Carey's contention in many instances as to the historic order of cultivation. Grant the point, yet Ricardo's law of rent is untouched. Not historic orders, but lands under cultivation at the same time present the basis for a differential rent doctrine.

That Carey said "no" when Ricardo said "yes" is taken by critics to be the backward and forward looking faces of the same proposition. This, however, is but another instance of the common fallacy of mistaking different things for the same thing. This I will show through a consideration of the essence of the whole controversy — diminishing returns.

Since Carey was not specific on the point, he leaves us to interpret his fundamental, possibly his subconscious philosophy of this question. In my judg-

ment there are three, and only three, possible interpretations :—

1. There is a declining demand for commodities as society approaches a more perfect association, and meanwhile there are increasing returns from land. In other words, while the supply of commodities is constantly increasing, our needs are constantly decreasing.

2. Another interpretation — and that the general one — is that Carey denied outright the law of diminishing returns as Ricardo used it.

3. Carey passed by diminishing returns in agriculture and reasoned with a land-supply concept in mind.

Regarding the first of these, Carey, after arguing for a tendency to substitute vegetable for animal foods, and for increasing powers of augmenting supplies of necessities as man approaches a more perfect state of association, said, "The better his clothing, the less is the waste of his body, and the less his need for food."¹ Further,² "Look, therefore, where we may, we find, throughout nature, a constant tendency towards the perfect adaptation of the earth to the wants of a growing population — each and every increase in the power of association and combination being accompanied by diminution in the quantity of raw material required for the maintenance of human life, and increase in that which may be obtained in return to any given amount of labor."³

Few men have been criticized more severely than Carey, yet none have been so cruel as to accuse him of being serious on this point. This does not enter in as a part of the body and substance of his philosophy.

¹ *Principles of Social Science*, vol. iii, p. 318.

² *Ibid.*, vol. iii, p. 319. Also *ibid.*, chaps. 46, 47, bear on the point.

³ Mr. Carey should have remembered that clothing and general comforts make a demand on the land as much as food does.

It must be considered alone — isolated from the body it is presumed to serve — it is a kind of philosophical comet blazing up for the moment, contrary alike to law, order, and common sense. Why did Carey compel the farmers to move to more fertile soil, if the soil they were on was constantly increasing its returns and the needs were constantly diminishing? The fact is that Carey, at this point of the discussion, has in mind a primitive economy.¹ This is no ultimate doctrine. That animals, well housed and protected from freezing weather, rains, and snow, require a less amount of food to preserve them in the same state of health and vigor is beyond discussion. That warm clothing, sanitation, and comfortable housing for people mean a less waste of body, and a somewhat less absolute need for food, is a matter of common knowledge. But at this point the analogy between men and beasts breaks. What the desires of horses and cattle were a thousand years ago, they are today. Man's desires, however, are progressive, they mount with every additional opportunity for gratification. Desires are the motive force of economic activity, and it follows that dynamic progression — the centre of Carey's philosophy — is based upon desires for more and better goods. To accuse him, then, of advocating the point beyond a primitive economy, or at least beyond the point where man has secured conveniences to conserve his animal heat, is to accuse him of contradiction so serious as to wreck his whole philosophy.

Upon the second possible interpretation much less is to be said. Ricardo limited land, labor, and capital to definite units and gave them a mathematical expression. Not to limit the land factor is, I submit,

¹ I take it that needs vary in relation to the standard of living: in a primitive economy needs are absolute essentials; in an advanced economy they correspond to the character of desires.

to dodge or pass over the diminishing returns issue in the Ricardian sense. This Carey did. There is not a sentence in his hundreds of pages on rent and population which claims that constant expenditures on a limited specific area bring an ever increasing return. His was a different theme, — from poor land to fertile, which I shall term a land-supply concept. His reasoning was upon an entirely different basis. He did not preach increasing returns on a limited area of land.¹ If a farm on the hill-side showed constantly increasing returns, it would soon be more productive than the low lands. If the farmer's first expenditure, or first dose, on the limited area yields 10, his second 12, his third 15, on up to 100 and beyond, what possible excuse could he have for moving to the low lands? There is no evidence that Carey regarded the process of moving as a particular source of large fortunes.

While Ricardo based diminishing returns upon historic conditions, his formula or his mathematical expression of it was static, and could serve only as a measure of static conditions. He assumed conditions in a given state of advancement. At the same time he recognized the Malthusian tendency of population to outstrip the means of subsistence. Thus he yoked a static with a dynamic concept. Consequently he over-emphasized the principle of resistance in agricultural industry, to the neglect of inventions in the industry as a whole. His prophecies as to resulting conditions were, consequently, extremely pessimistic. They have been falsified both in England and America.

¹ Sherwood, S., *Tendencies in American Economic Thought*. (Johns Hopkins University Press. Fifteenth Series, XII.) — Professor Sherwood argues to the effect that Carey did deny Ricardian diminishing returns, and, so far as I know, gives the best available argument for that contention. Professor Sherwood makes no distinction between diminishing returns on a limited area under static conditions and diminishing returns relative to the whole industry over a long period of time. (Pp. 20-23.) My contention is that the two are essentially different.

It was this that raised the ire of optimistic Carey. The conclusion is that the first two of these possible interpretations were not entertained by Carey. He never thought that as civilization took a higher form and became more complex our needs and demands for goods would diminish. Neither did he believe that the application of more and more units of labor and capital on a limited area would show constantly increasing returns.

Yet he preached increasing returns. This brings us to the third, and to what I believe to be the correct, interpretation of his idea of returns from land. It must not be forgotten that his thought was dynamic, his environment was one of growth and change, and in conformity his economy was dynamic. To him land was not a fixed factor in production as it was with Ricardo. The limited area concept was absent from his reasoning. Diminishing returns to him were quite different from a mere denial of diminishing returns in the static sense that Ricardo conceived it. The problem to him was a dynamic one, over a long period of time. He conceived returns in the light of growing skill, and of industrial and technical developments, that multiply with the growth of capital and population. Increasing power resulted in the better utilization of land, in the harnessing of new lands, in the substitution of richer, better lands for old lands.

Growing power to increase the land-supply or real productive power of the earth was, I submit, the central idea in Carey's reasoning on returns. This was no denial of Ricardian diminishing returns. Their problems were entirely different — static and dynamic returns are different species.

Carey's writings are on the border line, if indeed they do not suggest what I believe to be a truer state-

ment of proportionality than has been given. Recent thought, however, seems to owe more to Hobson,¹ Clark,² and Cannan³ because of their extension of the application of the rent doctrine, than to older writings on the subject. To avoid reading trains of thought into Carey which belong more to recent writers, I shall assume full responsibility for the following remarks, which, it is hoped, will present a truer statement of the difference between Ricardo and Carey.

Land, like labor, money, or tools, is a productive factor. The supply of productive factors is measured by their yield and not by their bulk. The number of laborers does not tell us the supply or productive power of labor. We must know of their skill, strength, and organization. The number of dollars does not tell us the supply of money, the value and rate of turnover of these dollars must be known. With the land-supply the case is not different. The land-supply is the available force or power to do the land work. The land-supply consists of available or effective utilities and not of potential utilities which may be harnessed in the future, or when new conditions arise. Location, fertility, and intensity of cultivation must be considered, as well as area, when reasoning on the land-supply.

Any productive agent is economically non-existent until its potential utilities become effective utilities.⁴

¹ Hobson, J. A., *The Law of the Three Rents*, *Quarterly Journal of Economics*, 1891, vol. v, pp. 263-288.

² Clark, J. B., *Distribution as Determined by a Law of Rent*, *Quarterly Journal of Economics*, 1891, vol. v, pp. 289-318; *A Universal Law of Economic Variation*, *Quarterly Journal of Economics*, 1894, vol. viii, pp. 261 ff.

³ Cannan, E., *Origin of the Law of Diminishing Returns, 1813-15*, *Economic Journal*, 1892, vol. ii, pp. 53-69.

⁴ Veblen, T., *On the Nature of Capital*, *Quarterly Journal of Economics*, August, 1906, p. 523. Commons, J. R., says, "The gifts of nature become capital as soon as

Gold at the bottom of the sea is economically non-existent because it has only potential utility. Gold in a national bank is economically existent; it has effective utility. The effective utility of land is the supply of land; the swamp lands, in the Carey use, — all lands, under given industrial conditions, which are beyond man's control, which in no way contribute or can be made to contribute to his needs, — are economically non-existent. They are no part of the economic supply of land. No one claims that fur-bearing animals in the wilds of Siberia, beyond the reach of man, compose a part of the supply of furs. Yet their name is legion who affirm that the supply of land is fixed, thus including lands impossible of utilisation under existing circumstances. The greatest enemy of some of their ideas is other of their ideas. Canals, like the Panama, that will make possible the drainage and cultivation of lands whose utility previously had not been dreamed of; railroads extending quick, cheap transportation into the interior, thus converting waste lands into corn and wheat fields; extensive systems of irrigation that banish nature's lottery of seasons and rains — these are increasing the effective utilities, the land-supply, extensively. Sub-soil plowing, — working down into the earth, building upon the soil, any means of more intensive cultivation, — any means of compelling a limited area to contribute more to the needs of man than before, is to convert potential into effective utilities — to increase the economic land-supply. This does not say that potential utilities are without influence on supply, — let the demand become stronger and force is applied to the harnessing of potential utilities. It

they are utilised by man. Before they are utilised they have no economic significance, and are, therefore, neither capital nor land, in the economic use of those terms." *The Distribution of Wealth*, pp. 137-138.

does mean to say that potential utilities are not a part of the supply. Not to distinguish between "amount of land" and land-supply is a source of confusion.¹ More intensive and more extensive utilization result precisely in the same thing, — more effective utilities, a greater land-supply. For the economist to reason on the acre basis rather than on an effective utility basis is to shift from an economic to a physical point of view. An acre of land is an acre of land, be it on the top of Mt. McKinley or on Wall Street. What of their productivity, their value, their capitalization? These are economic questions. The acre is a mere measure, an area test, of a physical entity, — that is all.

In old or new lands, potential utilities resist being harnessed; some such utilities are further than others below the margin of utilization. This is a matter of degree, not of kind. Whether extensive or intensive, such utilities resist being harnessed. This may be termed "the principle of resistance." This brings us to a further conclusion of great significance, heretofore unnoticed, namely, that it is impossible to tie down any one agent in our reasoning on proportionality and to treat it as a limited, or definitely fixed, factor. These truths, differentiation between effective and potential utilities in determining supply and the principle of resistance, are applicable to all productive agents. They are illustrated by the discussions on the quantity theory of money. Their essence is embodied in such expressions as "The nimble sixpence does the work of the slow shilling."² "The money force, or supply of money, is . . . composed of two factors, — the amount of money and the rapidity

¹ Fetter, F. A., *The Principles of Economics* (2d ed.), N. Y., 1910, pp. 155-158.

² Walker, F. A., *Political Economy* (Adv. Course, 3d ed.), N. Y., 1898, p. 121.

of circulation.”¹ Resistance is here implied, of course, else one coin would be a national supply. The reasoning applies to horse, laborer, machine, and all productive agents, in the same way and for the same reasons that it applies to land and money.

Realizing that a product is, under complex industry, a resultant of numerous indirect agents,² and that all indirect agents are alike subject to the “principle of resistance,” it follows that “diminishing returns” is simply a law of proportionality, with no fixed factors, and that all factors are adjusted, or the attempt is to adjust them so that the maximum efficiency of production will result. Such adjustment, equilibrium, or proportionality is an industrial ideal, and all efforts to attain it are, and must be, based upon the general principle of resistance.

In America, where land was so rich and abundant, economic advancement was striving toward that economic goal — a proportionality of factors. In a new country every step approaching that proportionality is attended with larger returns than the preceding step. Such environment produces subtle and inexplicable forces that bend action and force thought into new channels. “American economists from the time of Carey have naturally thought of change and progress as normal, and have protested against the assumption of fixity of customs, in social institutions, in the land-supply, in the labor force, and in the industrial processes.”³ Now that the supply of productive agents is elastic, and that resistance must be overcome in securing more effective utilities from these agents,

¹ Walker, F. A., *Political Economy* (Adv. Course, 3d ed.), N. Y., 1888, p. 131.

² See example of the day laborer's coat. Adam Smith, *op. cit.*, vol. i, p. 13.

³ Fetter, F. A., *Publications of the American Economic Association* (3d series, vol. xi, No. 1), p. 135.

and that a product is the resultant of numerous indirect agents, it follows that the proper proportioning of these agents must be based on the principle of resistance or diminishing returns.

The entrepreneur's problem is largely one of proportionality. He must so apportion productive factors as to secure the best adjustment of means and ends. He must meet the demands of the market. This is a problem of change and progress, of living force and movement; therefore the dynamical problem of *substitution* is ever confronting him. There is the double problem in proportionality of apportioning the productive factors and of apportioning the whole establishment to the extent of the market. This, should we take the space to argue it, would lead to the conclusion that when the point of greatest net return is reached more money would not be invested in the plant. The securing and maintaining proportionality is inseparably connected with the principle of *substitution*. In fact substitution is the means to that end. Now that diminishing returns is common to all productive agents, the proper apportioning of these factors in productive enterprise must be based on this general principle of resistance; therefore the principle of substitution must work in conformity with diminishing returns.¹

In the coöperation of productive factors the ideal is to secure such an adjustment as will yield the greatest net return. More of a single factor than the ideal proportion demands is unnecessary cost. Less of a single factor than a proper apportionment demands indicates unnecessary cost on the part of the other factors in the coöperation. Disproportionality means

¹ See Marshall on the relationship of the principle of substitution to diminishing returns. *Principles*, pp. 355-356, 435.

diminishing returns, substitutions or readjustments that bring about or approach true proportionality will augment returns. Whether long factors will be substituted for short, or the reverse, is a question partly of anticipated value return and partly of the comparative productive monopoly held by particular factors. For the above reasons long factors will not be increased. This would disobey the law of demand which tends to equalize marginal utilities, and would be unwise investment. In a productive establishment land, labor, and capital are coördinated and each employs the others, so to say. Also various competing uses are demanding each of these factors. A short factor cannot bid strongly enough to cause an increase of factors which are already too strong in the same establishment. If it could, it must be stronger than any competing use, but this would involve the absurdity that all competing uses are subject to still greater diminishing returns than itself. In a purely agricultural society where land, labor, and capital are devoted almost exclusively to agriculture, the range of substitution is comparatively limited. Alternate demands are few. Land in a particular location gradually becomes the short factor as labor and capital are increased. The demand for adjustment increases with the growth of disproportionality. Substitution must be made, but in the very nature of the case the long factors — labor and capital — cannot be adjusted to the short factor — land. Land must be adjusted to the other two. It is very evident that substitution is made because of diminishing returns on a limited area. Should we assume long factors to be adjusted to a short factor, it is still true that the purpose and act of substitution is based on diminishing returns. Movement from poor land to rich is substitution

based on the land-supply concept. Such substitution confirms diminishing returns on a limited area.¹

We conclude that the supply of the productive powers of factors or their effective utilities is elastic, that resistance must be overcome in the conversion of potential into effective utilities, and that the problem of disproportionality arises out of differences in the degree of resistance to be overcome in apportioning factors, or in increasing the supply of short factors. Substitution by avoiding greatest resistance seeks the easiest means of increasing supply. To advocate the law of substitution in production, except in cases of indifference, is logically to affirm diminishing returns. The substitution of new lands for old, or the use of new lands rather than a more intensive utilization of old lands, as population and capital grow, is based on the law of diminishing returns.

To attain superior adjustment of means and ends is, consciously or subconsciously, the ambition of all business concerns. It is the aim of all economies. This being true, the very fact that land was the short factor in the England of 1817 and the long factor in the America of 1848, helps us to account for these different economies.

With the law of substitution in mind, of which Carey made so much, I hope we are ready to state the difference between Ricardo and Carey on returns. In conformity with English conditions and with the thought of Malthus and especially Sir Edward West, we find that Ricardo's concept of diminishing returns,

¹ In fact this law of substitution simply pervades Carey's whole economy. Power over nature grows with the substitution of improved instrumentalities; from the use of the pack-saddle to the railroad car; from the canoe to the steamer; from the poorer to the richer soils; from animal to vegetable products; from the vegetable to the mineral kingdom, — at every stage substituting the cheap and abundant for the costly and scarce, thus progress is exhibited in the steady advancement from savagism up to the highest attained civilization. (See Dr. William Elder, *A Memoir of Henry C. Carey*, Philadelphia, 1880, p. 9.) These are of his most common expressions.

his statement of it, and his mathematical expression of it, were static, and were confined to a limited area.

In conformity with rapidly changing conditions in the United States, and with his own way of thinking, Carey's concept of returns was dynamic. He thought of returns over a long period of time and without limit as to area. Taking this view of the question only false reasoning could lead him to any other conclusion than that returns from land would increase with the growth of skill and science, of population and wealth.

Static diminishing returns and dynamic increasing returns have little or nothing in common. They are different species. To affirm the one is in no sense to deny the other.¹

We are brought to the interesting question, Did Carey deny Ricardo's concept? We might answer that he had nothing to say on a static concept of returns relative to a limited area. Seemingly he misunderstood what it was that Ricardo taught. In the absence of a specific statement, however, his teaching, as we believe, would rather confirm than deny the Ricardian concept. If not, why did he think that population would become too dense? This was his opinion in 1848 before he had found a check to overpopulation. Why did he look for the relief of overpopulation in the harnessing of new lands? Above all, the law of substitution was a salient feature of his economy. This law was so prominent that Dr. Elder spoke of it as a leading feature of Carey's writings.

In Ricardian usage land, labor, and capital were the productive factors. The essence of the problem confronting Ricardo was the disproportionality of these factors. Land ("being fixed") grew proportionately shorter with the increase of labor and capital. This

¹ Marshall, *op. cit.*, p. 165.

is to say, it showed diminishing returns. Of course returns are reckoned relative to the whole investment, tho in Ricardo's mind land was the particular source of increasing costs.

Also the problem confronting Carey was one of disproportionality. Briefly, what were his views? Population first settles on the poor land. Capital and labor increase until land becomes the short factor. Meanwhile increased strength enables them to appropriate a more fertile tract. After a time this becomes the short factor and so on until the most fertile tract is reached. Every movement is based on the principle of diminishing returns.

We conclude that the views of these two famous economists were not opposite views of the same thing. Their economics were upon different bases; two different economics from two different premises of fact and viewpoint; the one was an outgrowth of industrial and social conditions in the England of 1817; the other was an outgrowth of industrial and social conditions in the America of 1848.¹ Ricardo's diminishing returns and Carey's land-supply concept are both essential to a true law of diminishing returns.

The reason for the common opinion that Carey denied diminishing returns in the Ricardian sense is, I believe, that critics have made the common shift from static conditions on a limited, specific area to dynamic conditions covering the whole industry over a long period of time. Taking the latter, which is an entirely different problem, Carey was right. Looking either backward or forward, to the past or to the future, the whole industry, in the historical sense, shows increasing returns. Other reasons are that only effective utilities compose the land-supply or the supply

¹ Gide and Rist, *Histoire des Doctrines Économiques*, Paris, 1909, pp. 388-389.

of any factor. These compose the force, the available power to perform the functions of productive factors. Proportionality is worked out upon this principle, but in all adjustments tending toward proportionality, the law of substitution is assumed; it is the means to that end. This law, in turn, is generally based on diminishing returns. Therefore, having shown at length, that Carey's contention was for substitution for the short factor, — land, we have shown that, in reality, he confirms diminishing returns, tho he nowhere specifically mentions that law in the sense that Ricardo used it.

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THE RELATION BETWEEN KINDS OF STATISTICAL UNITS AND THE QUALITY OF STATISTICAL MATERIAL

SUMMARY

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THE name statistics denotes both a method, or methods, of utilizing a certain class of facts for scientific or practical purposes, and also the facts or materials of knowledge that may be so utilized. It is with the

materials accessible to exploitation by statistical methods that this paper deals. These materials are superficially distinguished as being numerical. Is it to be inferred that all numbers are statistics? Or, to put the same question in a different way, are they all statistical material of equal grade?

Statistics combines units into aggregates and recombines aggregates into totals. For comparison, the aggregates are then analyzed and condensed into significant averages and ratios. The quality of the product of these processes depends upon the adequacy of methods employed and upon the quality of the raw material. The quality of the material is conditioned by the character of the unit and by the completeness and correctness of the combination of the units into aggregates. In other words, the quality of statistical material varies with the adequacy of the count and with the character of the unit counted.

As regards the comparative importance of accuracy in enumeration and compilation on the one hand and of the character of the unit dealt with, on the other, it is sufficient here to affirm the equal importance of the latter and let the following pages be the evidence. So far as accuracy means exactness as distinguished from mere representativeness (if it might be assumed that we could have the second without a good deal of attention to the first) the superior importance of the character of the statistical unit, tho so little noticed, should be evident to those having acquaintance with the actual processes of statistical cumulation.

The uses to which numerical data may be put depend upon the kind of unit more fundamentally than upon anything else. The quality of a product is always conditioned or limited by its ingredients. It is, of course, fundamental to know what the unit

employed means, that is, its denotation and connotation must be clear. But when all requirements of definition and conception are met, the unit may still be good or bad, and consequently, the numbers obtained more or less amenable to statistical use. It is an incident of this distinction that some divisions of statistics, in their existing state, must be given lower scientific rank than others.

The scheme of classifying statistical units here proposed is as follows: —

A. Individual things the quantity of which is determined by counting.

1. Natural kinds and events relating to natural kinds.
2. Produced kinds and produced qualities of things.

B. Mensurational units which are applied to determine quantity without regard to individuality.

3. Physical measures (of length, capacity, etc.).
4. Measures of pecuniary value.

These classes of units are arranged in the descending order of their statistical quality. In this order we shall discuss them.

The Natural Kind

The conception of a distinction of kinds as developed by J. S. Mill in his *Logic* (book I, chap. vii, § 4) is as follows: —

There are some classes, the things contained in which differ from other things only in certain particulars which may be numbered, while others differ in more than can be numbered, more even than we need ever expect to know. Some classes have little or nothing in common to characterize them by, except precisely what is connoted by the name: white things, for example, are not distinguished

by any common properties except whiteness; or if they are, it is only by such as are in some way dependent on, or connected with, whiteness. But a hundred generations have not exhausted the common properties of animals or of plants, of sulphur or of phosphorus. . . . If any one even chooses to say that the one classification is made by nature, the other by us for our convenience, he will be right; provided he means no more than this: Where a certain apparent difference between things (tho perhaps in itself of little moment) answers to we know not what number of other differences, pervading not only their known properties, but properties yet undiscovered, it is not optional but imperative to recognize this difference as the foundation of a specific distinction.

Demography, or population statistics, has for its principal unit the human individual, and human individuals constitute a natural kind. Other examples of natural kinds in statistics are the various raw products of the animal and vegetable world, the numbers of which are usually obtained by counting discrete units.

It is evident that where the statistical unit is a natural kind it is superior in respect of both definiteness and fulness of meaning to any that requires an artificial distinction, however well thought out. It follows that, other things equal, the highest grade of statistics is composed of numbers relating to natural kinds. Tho the best examples are the orders, species, etc., of animals and plants, any natural and therefore more or less genealogical method of distinguishing objects would give classes of the same character. "Sticks and stones," as well as animals and plants, might be divided into natural kinds, tho probably differences of behavior are so helpful in classification that unmanufactured inanimate objects would not so readily lend themselves to the differentiation of kinds as do living things. But a genealogy of atoms and molecules and even of their associations and mixtures is conceivable; and it could not fail to show natural differences of kind.

Natural classification is the opposite of mathematical. A mathematical classification might be arrived at by a development of the permutations and combinations of specified qualities which would make of each combination a species. In a natural classification, definition does not depend on a single point but oftener upon a combination of characters, some of which may be absent. To classify plants merely according to the number of pistils and stamens is in this sense "mathematical." Defining by reference to a single point and hinging classification on such definition is a thing to guard against. Distinctiveness, in the sense of recognizability, is not to be attained that way, any more than is a workable classification. Statisticians sometimes fail to distinguish between clearness of discrimination — which is best tested by promptness of recognition — and sharpness of definition.

A very great advantage of the natural kind as a unit consists in its ordinarily being recognizable without the aid of definition. It is not necessary for the enumerator to exercise great discrimination in determining whether an animal is a horse or a cow. This is not the same as saying that there will be no doubtful cases in the discrimination of natural kinds, cases where the use of carefully devised definition must be resorted to. But the discrimination of the natural kind does not ordinarily depend upon them, while in the case of an arbitrary or "mathematical" classification it is likely to.

Statistics relating to sex and race deal with differences of kind. This fact adds greatly to the significance of the results of a count, even where, as in the case of races, mixtures are of frequent occurrence and definition, therefore, not easy. The different species of domestic animals are also natural kinds. Ox-hides

are, consequently, a natural kind, but shoes are not. A census of farm animals gives reliable results strictly in proportion to the care with which the enumeration is made, while a census of occupations or of manufacturing establishments may give somewhat uncertain and disputed results despite the greatest care and conscientiousness.

Variation in the size of units may be urged as an objection to the adequacy of counting as a means of determining quantity. In the case of a natural kind such variation is easily disposed of. It is ordinarily quite regularly distributed about a mean. If it be desirable to gage the character and range of such variation, the problem is one with which the statistical method is especially competent to deal. This is the nature of most statistical biology.

Variations in size may be studied as a means to the further and fuller characterization of the kind. Counting by size classes and sub-classes may be a sufficient substitute for detailed measures. Coefficients of variation for such variations as are of fairly constant character may thus be determined. When the variation, both quantitative and qualitative, about the mean is found to be very nearly constant, once these coefficients are determined, totals may convey all the information that it is necessary to obtain by actual count, the rest being easily estimated. It would seldom be necessary to specify the quantity of the sizes of grains in a bushel of wheat, or of fish in a catch, or of range cattle in a herd.

Natural kinds may undergo secular or evolutionary change. Cattle have increased greatly in weight in the past few centuries. This is an important statistical element which might seriously affect a comparison. But the presence of such a change is easily ascertained.

To make proper allowance for its influence is not difficult. Secular change in the character of the statistical unit is one of the least troublesome phases of definiteness.

Counting is the usual method of obtaining statistics of natural kinds. Measuring, tho sometimes a practical convenience, is never a logical necessity. Counting will tell more than mere measuring.

Differences in the degree of some quality of a natural kind partake of the statistical character of the unit to which they pertain. Age is an example. That it is measured in terms of astronomical periods is logically an accident. Ages represent differences in the degree or stage of development of a group of natural qualities, called, according to the varying stages, youth, maturity, senility, etc.

Births and deaths are events relating to natural kinds and they have a corresponding statistical standing. Thus vital statistics in general have a unit of the first order. But the status of a marriage is somewhat different. At least as legally defined, it is as much artificial as natural.

To summarize the conclusions drawn from the foregoing: Statistics of natural kinds are superior to such as are based upon some other sort of unit, both negatively and positively. Misunderstandings of the informant, of the enumerator, and of the compiler should be at a minimum in the case of such a unit. Instruction in niceties of definition is seldom necessary. And this ready recognizability is no accident; it results from the nature of things. Positively, also, such statistics have fuller meaning and may at any time develop an unexpected significance. A division into natural kinds is more concrete than one requiring abstract definition. Relations with other objects are

clearest where the terms are ordinarily concrete or discrete kinds. Much may be made of statistics of natural kinds even where there has been no careful attention to classification.

Products as Statistical Units

In calling the second order of statistical units "produced" objects we bring in the idea of economic production. Economic goods are the result of modifications of natural materials for human uses and purposes. The materials may still have the properties of natural kinds. But the statistics of such things will relate primarily to the distinctly produced qualities. Classes of these are not fixed and objectively definite. The purpose and function of the same article may vary, and physically different goods may, on the other hand, be made to serve the same purpose. A door is not a door when it has been converted into a table top. But it is not so easy to say when a street car ceases by reason of decrepitude to be a car. Corn is not fodder when it becomes fuel. If a chair is something to sit in, what is a stepladder chair? Personal idiosyncrasy as well as human reason may be a factor in such classifications.

The foregoing illustrations suggest the fundamental difference between units of the first order and those of the second order. Among the latter, definition and classification hinge mainly upon function. Natural kinds are defined otherwise. It is significant that the biologist finds functional characters of little or no use for the purpose of classification.

Manufactured commodities and instruments and the produced qualities of natural and other objects comprehend virtually the whole of the second order

of units. The drawing of the line between such objects and natural kinds is not always so easy as might appear, but that need not detain us.

With this sort of unit difficulties of definition do not, as with natural kinds, amount to less in practice than in theory. An important group of such difficulties consists of those resulting from a compound purpose — the case of a tool that will do several things equally well, or a wage-earner who has two occupations. Difficulties of definition are familiar in relation to numbers employed by a particular concern or in a particular occupation. Complications due to time lost, part-time employees, and subsidiary occupations, are ghosts that refuse to be laid. Apparatus in use or available will be returned variously until the use and the degree of need of reserves for repairs and emergencies becomes more nearly determinate. It is not an accident that these examples, tho there was no such intention, come from industrial statistics. Here much more depends upon good classification, or rather upon careful attention to classification and definition, than is the case in dealing with natural kinds.

Freight and passenger cars of the railways are characteristic made kinds, with a good deal of recognizability, but sometimes also occasioning much perplexity in border cases. How shall cabooses, how combination express and mail cars be classified? One street railway has been known to return the little-used private car of its president as a freight car. Difficulties are sure to arise where classification depends ultimately upon purpose, even tho incidental details of physical construction ordinarily help — perhaps in the end only to increase the doubts and difficulties when they do arise. It is the purpose of the maker and of the user

not the observer's notion of what is suitable, that is referred to, hence the criterion is comparatively objective. To define by the purpose of the maker is one way to make the required definitions clear and easily applied. This should be done, even at the cost of some degree of arbitrariness.

Produced qualities as well as produced objects have the characteristics of this second sort of unit. Social status in general, for example conjugal condition, probably belongs here. Occupations, and with them statistics of wages, clearly belong here. Wages really describe a produced quality of the person in the occupation, or the degree of such a quality. Hence wage statistics are not to be classed under the value unit, where they appear to belong. They are attached to a definite object, a human being, and afford knowledge of a certain produced quality.

It is probable that, as time goes on, this kind of statistical unit will tend to improve in character, quite apart from any statistical interest in such improvement. The modern tendency towards standardization of instruments and products is of increasing importance as markets become larger and productive processes more complex. Staple and standardized commodities are better suited to such conditions. Commercial variations in a given commodity that are not dishonest will tend to be fewer because the consumer will feel himself less able to cope with complexities. Statisticians and administrative officers will doubtless discover and apply means of preventing dishonest variations in commercial units. It does not so much matter what the unit is, provided it be fairly constant. That matters more and more, in practical ways as well as scientifically.

There are units which are intermediate in character

between the first and second orders. Such is apparently the family. In itself natural—at least there is a natural family—so many of its functions and traits are artificial or economic that the United States Census, perforce, defines it artificially. Yet inferences as regards the natural family derived from such statistics are not entirely bad.

The city also, so far as it is a statistical unit, has a similar intermediate character. Inequality of size would not be an objection to its use, tho any exploitation of such figures could scarcely fail to take account of this. If a fully natural kind, its definition would not, of course, hinge upon corporate geographical boundaries. But cities are rather too few in number for the “trees” to lose their individuality in the “forest,” hence there is less need of, and less opportunity for, aggregate or statistical treatment of the city as such.

The business corporation is legally and in some other respects analogous to the city. Here there is certainly a “forest.” There is no reason why we should not have true statistics of corporations. The unit is not perfect. It is in the main a produced unit, and the size and internal organization of corporations vary greatly. It is not entirely a produced unit, however, since it is a group of persons and has most of the qualities of the individuals who compose and direct it.

Whether nationality is a produced quality or a phase of a natural difference in kind may be doubted. It is a border case. A Frenchman may be of Teutonic stock, but he is French if his language, culture, and traditional sympathies are French. The characteristic element in statistics of immigration is usually nationality, hence such statistics are more of the second order than of any other.

Statistics of manufactured objects are gathered mainly by means of enumeration and their class or descriptive name will ordinarily tell much about them. But it will not always tell enough, even where much discrimination is exercised in determining what is to be counted and even when, also, the classes of objects are subdivided in the count. Hence a specially significant unit, one that is indirectly a unit of capacity, may sometimes be employed as a basis for addition and comparison. Thus statistics of cotton-spinning manufacture take as their unit the spindle. In some cases odd units may be reduced to a common denominator, as in the case of the standard 500 pound bale of cotton-ginning statistics.

Sometimes counting produced objects quite fails of its purpose and resort is had to measurement. Hence statistics of capacity in combination with number, examples being the tonnage of ships, the capacity of grain elevators and of engines for power production. This case is transitional to the next class of statistics, where the unit is primarily a measure of size or capacity instead of a concrete object. Counting by size-classes or grades, however, may sometimes be preferable to measurement.

Physical Measurement Units

Physical measurement units compose the third kind of statistical unit. Examples of physical measurement units are the ordinary measures of length, of cubical capacity, and of weight, and measures of energy like the horse power and the kilowatt hour.

The size of such a unit is the result of accident and convention. The length of the foot of some king is as good as a decimal fraction of the miscalculated

circumference of the earth. The horse power may as well have a merely arbitrary as any other relation to the power of an average horse. There is no particular reason why the yard or the pound should count for one, except convention and convenience. There should be some common and familiar standard. What it is, signifies little. Similarly it is necessary to have a rule of the road, but whether it says that one shall turn to the right or to the left does not matter. That the unit be accepted as standard is all that is necessary. There is a marked contrast between this situation and the way in which the statistical unit is determined for a natural kind. There we find nothing arbitrary or conventional.

But, tho the fact that units are merely conventional does not matter, there should be no variability or ambiguity in the convention. Our abominable English weights and measures include several different kinds of pounds, tons, quarts. Quantities reported in tons are only presumptively known unless the unit is described every time it is given. The most definite schedules are likely to be filled carelessly.

Engineers have been too ready to accept a situation as regards their peculiar technical terms which is not much better. Statistics of rated capacity of power equipment suffer considerably from lack of standardization. But the engineering societies are now attending to such matters. Mention may be made especially of the American Institute of Electrical Engineers. The work of the National Bureau of Standards insures steady improvement in metrology generally.

The very fact that the unit is a measure more or less arbitrarily arrived at, and incidentally become customary or standard, suggests its limitations. Measuring ignores individuality and disregards all but one

of the qualities of the objects measured. In statistics of the third order we no longer count the members of a kind and in naming also describe them. The significant relations of a measurement unit to things in general must, of necessity, be narrow because unilateral. They take account of only one thing at a time. A particular steam engine has a determinate relation to the men who run it and to the machines for which it furnishes power, but "ten horse power" has no such relation to other things. It tells something about an engine, but does not mean the same for a ten horse power engine as for one of a hundred horse power. It is more important to know the number of engines and their size (by classes) than their aggregate power. But we sometimes have to be content with horse power alone.

Measurements always involve abstraction. A measurement gives length, or cubical contents, or specific gravity, any one of which abstracts from all but a single quality or relation. Diverse measurements may give several such facts about a series of objects, but the results are still abstract. If we are to learn about the real concrete things it must be by way of supplementary or collateral information, not always statistical in character. Capacity may be measured, disregarding shape; weight, disregarding material; the figures thus limit themselves. The counting of discrete natural objects, on the other hand, gives numerical knowledge which can be supplemented to any desired extent by reference to natural qualities.

When objects are both measured and counted, which is to be regarded as the primary datum? On the whole the counted object should be primary because of its superior character as a unit, tho the greater importance of the measurement unit may sometimes outweigh

this consideration. It is well, whenever possible, to have both sorts of quantity and also to have the two clearly related, *i. e.*, the numbers by sizes or by size-classes.

Sometimes what appears to be measurement is in effect only a quicker way of counting. It may be more convenient to determine the number of new coins in a package by weight than by tale. But the result is not less a number of coins. Commodities are often weighed merely because this is the best way to arrive at their amount. Bushels are used to measure grain. The object so measured is a natural kind composed of individual things. Relations to other things, for example to nutritive value and tastiness, are not at all left out of account. In these cases measures are not resorted to because of diversity of type and of size among the objects, as in the case of produced articles such as generating engines. Natural kinds seldom require this, even where we are directly interested in their size, for they vary regularly about a representative mean. But the size of some marketable products is so largely produced that it has almost ceased to be a natural property of the kind; hence, there is a tendency to determine quantities of such things by weight, even when the article is sold in its natural state. If it is becoming true, however, that eggs should be sold by weight instead of by count, this is chiefly because of the work of the breeder in developing marked varieties of the domestic fowl. The size of the egg is coming to depend on the breeder's art.

Measurement aggregates may consist of one continuous quantity or a homogeneous mass, or they may relate to a miscellaneous lot of individual things which are varying multiples of the measurement unit. The



latter case seems to be the more frequent in statistics, perhaps because the more evolved and individualized things, whether made such by nature or by man, that is whether biological species or manufactured articles, are of more interest to us. But it is probably with the former class of materials that measurement begins, later extending to objects that might also be counted. The homogeneous material may, of course, be a natural kind, but not of the most interesting order. So far as it is such, a measured amount of it, of water or sand, for example, may have some of the advantages of the first order of unit — some only, however, because such unintegrated matter too readily mixes and mingles with other things.

Accuracy of measurement deserves notice in this connection by way of distinction from accuracy of counting, and also for comparison with it. The definition of the measurement unit offers practically no difficulties. The number of units to be recorded usually involves some mathematical computation upon the basis of comparison with a standard measure, or it may be obtained by estimation upon a more or less objective basis. There is not so much difference between measuring and objectively estimating quantities as one might easily assume. The view of an expert with the time and facilities for applying objective tests to check his results is worth much more here than it is in the field of counted units. The method of sampling can, in this case, if intelligently used, be adequate for most statistical purposes. The way in which several measurements are employed to check each other by the physicist and mathematician and are assumed to be inevitably more or less approximate, illustrates the necessary inexactness of human measurement and also suggests that “mathematical exactness”

may often be practically unimportant as well as unattainable. If we dealt with the objectively checked estimates of impartial experts as the mathematical physicist deals with quantitative observations, we might find them very nearly as good for most of the purposes of statistics as "exact" measurements.

It sometimes happens that the reduction of odd articles to a common measurement standard is desirable. Provided the material contained is homogeneous, little is lost. But caution in the use of this short-cut is imperative. The day's work, for example, is not merely so many hours of work. A 16-hour day is by no means equal to two 8-hour days; nor is a 48-hours-a-week schedule the same regardless of how or when the time is put in. Sometimes administrative regard for facility of enumeration may cause a too easy acceptance of the measurement unit in such cases, when varieties and their relative importance are quite as interesting as totals and averages.

Some statistical units in common use are compound. This is especially true of units of physical capacity and performance, that is, of such as have the characteristics of our third class. Such a unit usually takes up whatever disadvantages pertain to both its terms. The foot-pound is only apparently such; its compound name resulting from the attempt to make concrete an abstract conception. Foot-pounds per hour is truly compound; hence horse power is compound. The car-mile and car-hour are compound. The vagueness that attaches to these units follows from the character of the basic unit, which is of the second class. It is important to know the size of the car and whether trailers are used. But the grade and curvature of the road also affect the significance of such a unit. If the idea is to measure the potential service performed by a passenger

car, the seat mile is more to the purpose. One term of this unit is of the first order. The ton-mile unit is of the third order as regards both its terms. But data for ton mileage and seat mileage do not make it possible to dispense with car mileage.

Comparability is the fundamental desideratum of statistical data. There is no difficulty about it with natural kinds. There is a good deal with produced objects. The difficulty is apparently met by the use of measurement units, but the solution is often apparent only. The additive quality is secured, but perhaps at the cost of losing trace of important relations to other things. Hence measurement as a means of obtaining a total aggregate amount is to be considered a supplement to, not a substitute for, counting, whenever the quantities dealt with are composed of discrete natural objects.

The Pecuniary Unit

The fourth order of statistical unit is the unit of commercial value. It is possible that some other than the monetary measure might be found that could serve as a basis for value statistics. In fact, however, the only sort of unit we use is something reducible to the dollar. Whether any and all statistics of this fourth class should be called financial, or financial and commercial, as seems to be the tendency, is questionable. But financial statistics are representative of the class.

One reason why the pecuniary unit bulks so large in common statistics, including business statistics, is because it is the most universal of common denominators. There is not much of practical interest in the world that does not, at least occasionally, have a

pecuniary value assigned to it. Nor is the tendency to attribute to all things a pecuniary value so reprehensible as is often alleged. The error, which is a moral as well as intellectual error, consists not in the extended application of the pecuniary measure, but in supposing that it has an intensiveness, comprehensiveness and independence of meaning which is foreign to its nature. Just because of the general applicability of the dollar as a common denominator, its definable content and meaning must be small. All measurement units suffer by reason of their abstractness. The most universal of common denominators, despite its fundamental interest for every human being living in an exchange economy, will naturally suffer most in this way.

In citing examples of the fourth order of statistics we can hardly refrain from commenting on their quality. Statistical inferiority is characteristic of numerical data based upon the pecuniary unit. A review of examples of such statistics becomes a process of learning why this is so. Hence this judgment may as well be put at the front of this section. It applies with full force, however, only when the pecuniary unit is used by itself and as standing on its own bottom.

Financial reports are the sources of most pecuniary statistics. Our statistics of railways, in the main pecuniary, are among the best examples of the class. An authoritatively prescribed uniform system of accounts will make them vastly better than they were before. Statistics of assessed valuation and of taxation are a less developed variety of the fourth order. But, if we wish to prove that we are economically better off than were our forefathers a hundred years ago, it would be sounder to argue less from the increase in *per capita* wealth than from the application of inven-

tion to promote abundance and variety of goods. Statistics of export and import trade are almost altogether pecuniary as to their unit, largely because of a possibly too great regard for administrative convenience. Hence it is not easy to determine just what is the status and recent tendency of British trade or just what our own trade balance signifies. Aside from disturbing factors peculiar to international trade, the level of prices changes with time and place and with it the meaning of the pecuniary unit. Finally, our statistics of capital and capitalization are most completely pecuniary. Despite great practical interest in them, all such data are, as compared with demographic statistics, scientifically barren. The almost exclusively practical interest of their compilation is no sufficient explanation. On the contrary, this should provide richer and better material for analysis by the scientifically disposed.

One reason why pecuniary statistics are so generally unreliable as to their comparability, and therefore as to their significance, is because they are usually derived from books of account. Accounting theories and practices are anything but uniform as regards their treatment of particular items. Indeed, less elasticity of method and usage would often serve less well the purposes of business men. Accountants, for their lack of breadth of view, deserve part of the blame. But the public interest in the intelligibility of financial statements is gradually establishing authorities to prescribe and compel uniformity in such matters. Until uniform systems of accounts have been in effect long enough to insure their smooth and accurate working, our financial compilations will fall much short of being entitled to the standing that should be connoted by the name statistics. Accounting entries

ought to have constant significance and comparability. The mere accountant has been too much inclined to make his own financial balances the *ne plus ultra* of his work.

The investor is likely to form his opinion of a stock on the basis of what it pays in dividends. But if he is alert he will consider rather the net income earned from year to year. Tho much speculation has just so superficial a basis, a dealer in stocks will go deeper. The investment expert of a broker or banker will go as far into a company's reports as there are data. He will, if possible, analyze the physical statistics. That he does not give more attention to such matters may be explained by the usual absence of the necessary information. Even the expert, however, is likely to give the investor chiefly the tabulations of gross and net income to which he is accustomed rather than educate him up to some understanding of the physical basis of profits.

If profits are really there, the basis is physical as well as economic. But the basis of net income as it stands in a company's report may be neither physical nor economic. With accounting methods not yet fixed and with the management unchecked by statistical indices of physical condition, it is quite possible, especially through maintenance accounts, to juggle with net income in ways that no superficial analysis will disclose. Depreciation can be charged only on an accrued or estimated basis and we have as yet no sufficient experience to check the basis, tho we have had plenty of experience of the arbitrariness and manipulation of maintenance charges. All this relates to property operated. Intercorporate relations and resulting elusive "other income" offer another handle for manipulation. The line between capital expendi-

tures and operating expenses is in its nature indefinite. That between expenses of the period and of other periods (or years) is equally so, especially on account of depreciation. Hence the necessity of honesty and — as a guaranty of honesty and competence — full data to enable the outsider to form an opinion. "Accrued" income may often be more properly described as contingent. Hence the "actually paid" basis of the federal corporation tax. The government can wait for the long run. But the outside investor may be "cleaned out" long before the consummation of long-term changes whose probable effect he is not permitted to see.

Merely financial reports are not adequate to the use to be made of them. It is of the essence of accounts that they cannot be so. "Net income" is as much a result of how the books are kept as of profitable business transactions. It should not by itself be the test of solvency but should be supplemented by full operating and physical statistics.

The inferiority of the fourth order of statistics, however, is due to more fundamental causes than arbitrariness of accounting practice. The dollar is intrinsically inferior as a statistical unit. The physical measurement unit as well as the pecuniary unit is the expression of a relation and not discrete; but the former can easily be so conceived while the latter cannot. The dollar unit is so completely abstract as to be not even imaginable. It is a measure of "power in exchange." But the dollar's power in exchange does not mean the same thing to any two persons. Even if subjected to the test of actual exchange and determined by market conditions the purchasing power of a dollar fluctuates, hence estimation must be resorted to and allowance made

for time and place. Even then much depends on "whose ox is gored." Financial data usually have the character of interested estimates. Differences in valuation are not mere variations around a mean and are not moderate. Hence they are not easily dealt with or lightly to be disregarded. Reducing to a fine gold equivalent is merely a way of getting around diversity of currency. Changes in rates of exchange are a minor adjustment, for custom and "psychology" are factors in price. The symbol is familiar and constant. That for which it stands changes in ways not easily determinable, certainly not to be simply ignored.

The method of index numbers — itself a nice problem in statistics — largely meets such difficulties with the value unit as are due to changes in time. Logically, however, the index should change with every purpose for which statistics of the fourth order are used. The proportionate weights of the prices of particular articles which are determined by the consumption of wage-earners in a manufacturing community seem to be of greatest use. But they are not therefore generally adapted to all purposes, even tho adjustment of the weights cannot be alleged to be indispensable.

The financial statistics showered upon us do not have the definiteness of meaning that statistics may be expected to and *ought* to have. Efforts should be made to close the existing great gap in scientific character between financial and demographic statistics. For taxation and financial administration and for the public control of corporate management, adequate statistical data will become more and more necessary. This refers to the need of governmental action. Purely private interests (if there be such) are also involved. Many large corporations are coming to feel that they

ought to make the knowledge of their operations accessible to the public, at least to their actual and possible stockholders. The statistician thus tends to be a necessary aid in the conduct of every large corporate enterprise.

A suggestion of the direction which improvement will take is contained in the rather obvious proposition that economic and pecuniary statistics are not necessarily the same. The backward state of economic statistics, as compared with demographic, is doubtless largely due to a too ready acceptance of figures of value as a satisfactory answer to economic questions. But economic statistics need not be so superficial. They will, when fairly complete, doubtless contain values, but will not be composed of them. Statistics of manufactures and trade ought to present quantities and kinds of products as well as values or prices. Our agricultural statisticians do this very largely, tho they too sometimes seem to prefer to detach the values from all other numbers relating to their data. Even where the interest is purely commercial or financial the trend is towards more adequate figures. We are told of tons of rails produced as well as of the value of the output. It would be still better to have the kinds specified, *i. e.*, the weight per yard and the material, perhaps also the shape, — things which, it should be observed, are seldom necessary in statistics of natural kinds. Our numerous practical "statistical" manuals designed for investors need to pay more attention to such possibilities. But the large corporation must first appreciate the importance of compiling and making public more adequate data.

Index numbers have been referred to above as affording a way out of some of the difficulties of statistics resting upon the pecuniary unit. This is a way to

get beyond pecuniary value and down to concrete goods. We may thus learn what the dollar means in terms of necessary articles of consumption. The device is practically the determination of an equation between money and commodities. The principle of this solution ought to be more generally applied.

*A Way to Better Statistical Material, especially
to Better Economic Statistics*

While it is of some scientific interest to distinguish different orders of statistical units and of statistics, what the distinction is really worth depends upon what purposes it may serve. For statistical practice the important question is: How can the inferior orders of statistics be improved?

Statistics first achieved scientific standing in the field of vital statistics and demography, that is, in a general way, among natural kinds. Whether as an extension of the view-point of "political arithmetic" or as an intensive development, statistics that are something more than mere numbers have come rather later in other fields. Among the divisions of our federal census the volumes on population are, as statistics, the best; those on agriculture (the units here also being chiefly natural kinds) rank next; and last or lowest in quality are the statistics of manufactures, the reason being that the unit is too largely pecuniary.¹ One might well infer that our statistics of manufactures should be made less dependent on the pecuniary unit. This is not meant to imply that our census officials are unaware of the need.

¹ The defects of the volumes on vital statistics — the statistics obtained by enumeration as distinguished from the recent compilations of mortality registration records — do not vitiate the comparison because their condition is due mainly to an accident in the development of our statistical administration.

The way to improve pecuniary statistics is to relate values and prices, present and past, to the things to which they pertain, or rather to the statistics of those things. Pecuniary statistics should be, so far as possible, either accessory to or supported by statistics of higher orders. An amount paid in wages immediately provokes a question as to the number and kind of wage earners, how long they worked, and whether on full time or part time. It is not enough to know the value of our exports of a particular class of commodities, tho the difficulty of defining varieties does in part excuse the shortcoming. Railroads want to know the relation of expenditures to work done, hence ratios of cost and of traffic to various operating units, expenses and revenues per train-mile, ton-mile, etc. New uses of such units and ratios are constantly appearing. Detailed power and wage statistics serve the same purpose and will soon be considered a necessary part of the classified and analyzed records of any large private corporation. It is a need of our mental nature that values be predicated of definite things. As the workings of our minds are pragmatic, this need points to a function.

Especially statistics of capitalization need to be related to the statistics of capital or of the means of production upon the basis of which securities are issued. This happens to be a degree removed from the direct interest of active business men, hence "neglect" does not sufficiently describe their attitude in the matter. Some of the uses to which physical valuation might be put may reasonably be objected to, but to the thing itself there is no valid objection. The investor should be put in position to know his property. The only way in which such knowledge can be conveyed to his understanding in the case of a large corporation

is by statistical description. This is the foundation and essence of physical valuation. A corporation cannot properly have secrets. Especially in relation to its stockholders, its duty is not merely the negative one of abstaining from withholding information. Even if the corporate net income be the basis upon which the investor buys the stock, its stability as well as its amount is important and the probable stability of the income depends chiefly upon an adequate physical basis.

Economists of a certain tendency share with business men the blame for inadequate notions of how financial statistics ought to be looked upon, at least as regards the phase of them that relates to capitalization. The capital value concept is useful and important. The attempt to wash out the distinction between capital as a sum of value and capital as concrete means of production, or what amounts to this, to ignore the latter meaning, is very much the opposite of useful. The dominance of the corporate form of organization makes it important not to destroy, but to develop the idea of capital as concrete means of production. The small individual entrepreneur does not know less of what he possesses by reason of the fact that he reduces all to terms of value as a common denominator. The stockholder of a large corporation is differently situated. He can know what he possesses and how it is being used only by means of adequate physical and operating statistics, including data of performance, duly reported to him. Mere balance-sheet and income statements are not sufficient. Here is where the capital-value theorists may have occasioned some distraction of attention from real needs. With adequate inventories of extant properties, capital assets could not be made to include dead horses, tracks removed, obsolete and unused implements, all and

sundry covered by combination and by temporary monopoly or other advantage, without security for the continuance of such advantage and thus with loss to the investor. Uniform accounting systems should largely take care of this need as well as of the proper treatment of accounts in the customary narrower sense, as distinguished from records.

Accounts should, in general, be supplemented by records or statistics, tho the word so used sounds pretentious. The inventory made once a year, or oftener in the case of a mercantile stock, should not be dispensed with in the case of fixed capital. Tho it need not be made so often, we know that fixed capital also may disappear in ways not accounted for. Corporations have their "storekeepers" who carefully check and record whatever materials and supplies they receive and issue. Should not there be records also of the more valuable tangible assets? As statistics constitute the state's means of knowing itself, so the only available means by which a large corporation can know itself are likewise statistics, both physical or static statistics and operating statistics. So far as size is the compelling factor, there are modern business corporations quite as large as were important states when statistics first began to be.

So-called cost accounting, or cost keeping, occupies much the same position in relation to operating statistics as does physical valuation in relation to the knowledge and quantitative estimation of fixed investment. It is an attempt to show the connection between fundamental physical facts—quantity and kinds of raw materials, labor time of various sorts, space and power required—and the quantity and value of products. It is essentially statistics rather than accounting, since in it numerical comparisons are more

important than the registering and balancing of **pecuniary** obligations. The development of cost-keeping **in** the business world is a phase of the increasing **importance** of statistics.

Any considerable acquaintance with compilations of numbers in tabular form should make it clear that **not** all figures are statistics, nor all figurers statisticians. Economists without special statistical interest or training have probably contributed to the general **misconception** of statistics as merely masses of figures. The large corporation is now coming to feel it desirable to have a statistician, tho he is still likely to be regarded as a special kind of clerk, one who is "quick at figures." Sometime it will be recognized that neither an accountant's nor an engineer's training specially qualifies for statistical work. The statistician should be grounded in demography and familiar with the statistical methods used in dealing with natural kinds, no matter how "practical" his later work is to be. It is true also that he cannot have too realistic a knowledge of his special field. The differentiation between the accountant and the statistician will probably come to mean that the latter is specially competent to deal with physical things in their numerical and quantitative aspects by means of methods suggested by a study of the higher orders of statistics.

Figures are symbols. They serve only to connect our thoughts with things. Not all statistics do this with equal directness and sureness. It holds especially of figures based upon the commercial unit of value that the meaning is not self-evident. The measure of value is less intelligible than physical measures. Statistics based upon measurement units are, in general, less good than counts, whenever the kinds counted are adequately classed and of well-defined character.

Realistic comprehension is scarcely possible with value measures unless they are definitely related to things. Things valued should be also defined and counted, or at least physically measured. The statistician must see the quantitative relations of the numbered things, not the mere symbols or numbers. As statistics becomes of greater recognized importance and as its methods are applied to more and more branches of knowledge—being thus of doubly increased significance—the greater will be the need to attend to such considerations as are mentioned in this paper. We shall supplement statistics of produced kinds with measurements, instead of beginning and so largely ending with the most abstract of measurement units, thus getting the cart before the horse. Without implying that the other orders cannot sometimes be helped by extending quantitative enumerations and analyses to cover value, it is clear that the latter kind of statistics has much less to give than to receive.

To say that pecuniary statistics are less good than pecuniary statistics plus other kinds of related figures supporting them, is an affirmation of the obvious. Yet this fact needs emphasis. Pecuniary statistics greatly need such support. Nor is it quite true that the rule works equally well the other way. The pecuniary unit is the weak member which ought as little as possible to be left to stand alone. Stated values are seldom disinterested and their basis is never quite objective. We need always to know kinds and grades and their numbers or quantities, along with values. The foundation of all statistics should be in natural kinds or in the best obtainable substitutes for them.

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SOME PROBLEMS IN MARKET DISTRIBUTION

SUMMARY

Lack of systematic study of market distribution. Emphasis on production explained by economic causes. Importance of a better organisation of market distribution, 703. — Complexity of the problem facing the distributor. Consumer's surplus. Bearing on the distributor's problem, 707. — Selling at the market minus, selling at the market, and selling at the market plus, 712. — Social justification of the differentiation of commodities: Importance of trade-marking, 718. — Methods of sale: sale in bulk; sale by sample; sale by description, 721. — Available agencies for selling: middlemen, producers' salesmen, and advertising, direct and general, 723. — Emergence and rise in importance of the middleman. Modern tendency to decrease number of successive middlemen, 725. — Analysis of the functions of the middleman: sharing the risk, transporting the goods, financing the operations, selling or communication of ideas about the goods, and assembling, assorting, and re-shipping. Development of functional middlemen. Advantages of direct selling in some industries. Present day importance of the direct selling in some industries. Present day importance of the middleman, 731. — The producer's salesman as an agency in distribution, 740. — Advertising as an agency in distribution: relation to sale by description; relation to trade-marking; analysis of classes of demand created by advertising, 742. — Social waste in distribution. Practical problem of distributor, 746. — Analysis of market into geographic sections and economic and social strata, 749. — Laboratory study of distribution, 754. — Wide application of such method of study, 758. — Possibility of better organization of distribution, 763.

INTRODUCTION

THE business man is concerned with the production and distribution of goods. Factory production he finds relatively well organized. The era of the rule of thumb is passing, and the progressive business man can call upon the production expert, technically trained, to assist him in solving his problems of pro-

duction. But the marketing of the product has received little attention. As yet there has hardly been an attempt even to bring together, describe, and correlate the facts concerning commercial distribution. Selling is on a purely empirical basis.

The progress that has been made in organizing production is the result of systematic study. For centuries attention has been concentrated on the problems of production. Methods of study that have proven fruitful in other fields have been applied to the problems of manufacture and a body of organized knowledge is being built up.

Now the problems of market distribution are no less worthy of systematic study than are the problems of factory production. It is as essential that the finished goods be moved from the stock room of the producer to the hands of the consumer, as it is that operations be performed upon the raw material to produce the finished goods. And the problems of marketing are even more complicated than the problems of manufacturing, because the human factor is of more direct importance. Hence the rule of thumb can be less depended upon in distribution than in production.

Why has not systematic study been given to the problems of distribution? The explanation is found in a glance back in our economic history. Chief among the causes for the industrial changes leading to the establishment of the factory system in England in the eighteenth century was the constant widening of the market. It was a rapidly increasing pressure on the producer for greater quantities of staple articles for mass consumption that gave incentive to the revolution in the method of production. For a century thereafter the necessity of supplying a continually widening market, as means of transportation steadily

improved and the population increased with unprecedented rapidity, made production the dominant problem. Economic conditions have put the emphasis on production.

Where the felt need is greatest, there will the organizing ability of the human race concentrate itself. The problems of production were sensed as the most pressing that faced society. He who improved methods of manufacture to increase output or reduce cost reaped a large reward. Hence the ablest minds were drawn toward the solution of those problems. The business manager gave his best thought to the difficult task of producing more goods at lower cost. The constantly widening market made selling a simple problem.

As a result we have built up a relatively efficient organization of production. While much remains to be done, the resources of modern science are being utilized to improve and organize our agencies of production. The development of producing capacity has been tremendous. New processes have been and are being introduced. New forces have been called into play. Methods are constantly being scrutinized to effect a more economical and efficient organization of production. The recent introduction in many industries of so-called "scientific management" is only a partial crystallization of long years of progress.

While we are but upon the threshold of the possibilities of efficiency in production, the progress thus far made has outstripped the existing system of distribution. If our producing possibilities are to be fully utilized, the problems of distribution must be solved. A market must be found for the goods potentially made available. This means, in the main, a more intensive cultivation of existing markets. The unformulated wants of the individual must be ascertained

and the possibility of gratifying them brought to his attention.

There are some, to be sure, who deplore the increasing complexity of human wants. This is a problem for the philosopher, not for the business man. Our whole civilization has been characterized by an increasing standard of living due to the demand on the part of the individual for more goods and more highly differentiated goods. The business man finds his practical task in searching out human wants and providing the means of gratification.

Not only does the chaotic condition of distribution act as a check upon further development of production, but it also involves a tremendous social waste. The consumer pays for "lost motions" in distribution as surely as he does for "lost motions" in production. Society can no more afford an ill-adjusted system of distribution than it can inefficient and wasteful methods of production. The social cost is no less real.

The most pressing problem of the business man today, therefore, is systematically to study distribution, as production is being studied. In this great task he must enlist the trained minds of the economist and the psychologist. He must apply to his problems the methods of investigation that have proven of use in the more highly developed fields of knowledge. He must introduce the laboratory point of view. To that end, an attempt is here made to outline some of the problems of commercial distribution from the point of view of the business man, to analyze them, and to point out some methods of systematic study of these problems.

PRESENT DAY PROBLEM OF THE DISTRIBUTER

The problem presented by the United States as a consuming market is a complex one. Here are ninety-odd million people distributed over an area of more than 3,000,000 square miles (excluding Alaska). Some are gathered in the large cities, where millions jostle elbows. Some are scattered over great areas with considerable distances between them and their neighbors. Some daily pass hundreds of retail stores; some must ride miles to reach the nearest store. Wide extremes in purchasing power exist. Millions have a purchasing power scarcely sufficient to obtain for themselves the barest necessities of life. A few can satisfy the most extravagant whims of the human imagination. Between these extremes lie all degrees of purchasing power, the number in each class becoming greater as you descend in the scale of purchasing power.

Their wants are as varied as their purchasing power. Environment, education, social custom, individual habits, and all the variations in body and mind tend to render human wants diverse. In each individual there are certain conscious needs being constantly gratified by the purchase of goods produced for such gratification. Then there are the conscious needs which go ungratified because of the limitations upon purchasing power and the existence of other needs of greater felt importance. And then there are the unformulated, subconscious needs which fail of expression because the individual is ignorant of the existence of goods which would gratify them. Twenty years ago, to illustrate this last class, there existed in the farmer, far from a barber shop and clumsy in touch,

an unformulated need for a safety razor. Today, the distributor forces upon his attention the existence of such a device and the unformulated need finds expression in effective demand.

The accepted system of distribution was built up on the satisfying of staple needs. The pressure of the market discussed above made it unnecessary for the business man to search out unformulated human needs. Only in recent years, when the development of production, potentially outstripping the available market, has shifted the emphasis to distribution, has the business man become a pioneer on the frontier of human wants. Today the more progressive business man is searching out the unconscious needs of the consumer, is producing the goods to gratify them, is bringing to the attention of the consumer the existence of such goods, and in response to an expressed demand, is transporting the goods to the consumer. The task is one of adjustment. The materials and forces of nature must be bent to human use.

This sort of activity has not only built up new consuming power in the market, and contributed to the progress of civilization, but has given rise to new price policies that have undermined the old organization of distribution in staple lines. Hence it is important in outlining the present day problem of distribution to give special attention to the more progressive distributor, rather than to the typical distributor.

It is not alone to revealing and gratifying unformulated wants by the creation of new goods that the more advanced business man turns. He finds like opportunity in the difference between the market price that has come to be established for a known commodity and the varying subjective valuations placed upon such a commodity by consumers of differing purchasing

power and of differing social position and individual habits.

The economists tell us of the "consumer's surplus." Briefly, this is the difference between the market value for a commodity and the subjective value of the commodity to the individual consumer. Each individual sets up for himself a ratio of exchange between commodities which finds expression in the price he would be willing to pay for a given commodity rather than go without it. These subjective valuations constitute the demand side of the market. The interplay of supply and demand gives rise in a competitive market to a market price at which the consumer can obtain the commodity. Now if this market price is above that fixed by the subjective ratio of exchange of the consumer, he drops out of the market, utilizing his purchasing power to secure other commodities. But if the market price is below that which the consumer would be willing to pay to obtain the commodity, he purchases at the market price, and the difference between his subjective ratio of exchange and the objective market ratio of exchange constitutes his "consumer's surplus." The man of means, for example, purchasing his morning paper for a cent, would still purchase if the price of the paper were fixed at five cents, at ten cents, or possibly more. Somewhere in the ascending scale a point would be reached at which even the man of means would drop out of the market. But long before that point was reached the less well-to-do of the possible readers would have ceased to purchase the paper. And the difference between the price at which the well-to-do man would drop out of the market and the market price of one cent which he actually pays, represents his "consumer's surplus."

The more able distributors turn, tho usually unconsciously, to the existence of this margin as the basis of a demand for what is to all intents and purposes a new commodity. That is, they differentiate a product from a staple commodity for which a market price has been established and establish an effective demand for the modified product upon a new price level, higher than that established for the commodity of which it is a modification.

The means used for differentiation are numerous. Sometimes slight modifications render it better adapted to the use to which it is put. Sometimes niceties of trimming and equipment are utilized. Sometimes a new and more convenient style of package is used. Sometimes the distributor builds up an atmosphere of good taste about the goods, or a reputation for constant quality which insures the consumer against dissatisfaction. Sometimes the distributor depends upon "service" or special conveniences to the consumer provided as collateral to the commodity.

Always, however, the aim is to isolate his product from the stock commodity of substantially like nature. And nearly always the distributor utilizes trade marks, brands, or trade names to identify his product as a distinct commodity.

He must then convey to those consumers whose subjective ratio of exchange would have led them to pay a higher price for the stock commodity before transferring their demand to other goods, knowledge of the existence of his differentiated product at a higher price level. By calling attention to the superior qualities or convenience, or constant reliability of his differentiated product, he transfers to it a portion of the demand that formerly found expression in the purchase of the stock commodity.

The marketing of hats furnishes a good illustration of this development. If derby hats were distributed as a staple, unbranded and at a single market price for a given quality, many consumers would pay perhaps \$3.00 for a staple hat, whose individual ratio of exchange would render them willing to pay more than \$3.00 for a hat rather than go without. But certain producers have distinguished their hats from the staple hat by their brand. By calling the attention of the consumers to niceties of trimming and finish, and by emphasis upon design, some such producers have built up a demand for their hats at \$5.00. Now these trade-marked hats and the staple, unbranded hats selling at \$3.00 are substantially the same commodity, but are differentiated by detail modifications. These detail differences render the well-to-do consumer willing to pay a higher price for the trade-marked hat. No doubt the demand for the more expensive hat depends in part upon the sense of security on the part of the consumer that his hat will be of good quality and of proper shape if it bears the name of these producers. This feeling of security forms a part of the subjective valuation that the consumer places upon the hat. No doubt, too, motives of pecuniary emulation sometimes enter in, and the consumer derives a portion of his gratification from the mere fact that he purchases a hat which sells at a higher price than those purchased by his less well-to-do neighbor.

It is of interest to note that other manufacturers of branded hats have in recent years fixed their prices at \$4.00 and \$6.00, appealing to consumers upon different price levels from those reached by prior distributors of trade-marked hats. Thus they reach with a \$4.00 hat a group of consumers not available to the distributors of \$5.00 hats because their subjective

ratios of exchange did not render them willing to pay \$5.00 for a hat. And with a \$6.00 hat they draw from the distributors of \$5.00 hats a part of those consumers whose subjective valuation upon a hat rendered them willing to pay more than \$5.00 for the commodity.

The activity of the more advanced distributors in differentiating commodities has tended to break down the orthodox methods and policies of distribution, and this necessitates an analysis of the possible price policies of the present day merchant-producer.

PRICE POLICIES OF THE DISTRIBUTER

The producer who today enters the market to manufacture and sell a commodity in competition with other producers of substantially identical products has open to him three general price policies. He may adopt one of these to the exclusion of the others, or may use them in combination.

These three policies may be termed, (1) Selling at the market minus, (2) Selling at the market, and (3) Selling at the market plus.

(1) *Selling at the market minus* is that policy which aims to increase sales by reducing price. The distributor who markets his product at a price range below that established for the identical commodity as sold by other producers not only attracts consumers from other distributors, but also brings into the market as consumers certain of those whose demand was before unexpressed because the price level established for the commodity was above that warranted by their subjective valuation on the commodity.

This policy does not ordinarily involve a differentiation of the product from the stock product of like

nature, nor the use of trade marks, brands, or trade names. The producer depends upon increased sales to give a reduced proportion of overhead expense and reduced costs of large scale production, thus increasing his area of profit. The producer appeals to the consumer mainly through the difference in price level. Hence, the successful pursuit of this policy in a competitive market over a long period involves a continuing ability to sell the commodity for less than the price at which other producers of substantially identical products are willing or able to market them.

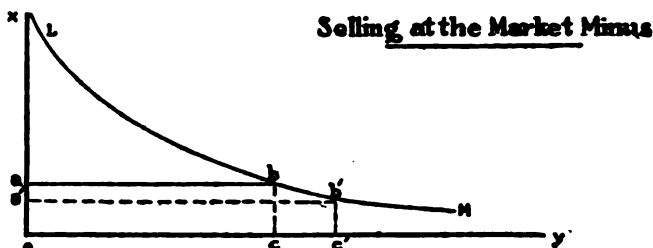
This policy finds illustration in the selling policy of most department stores. It is the basis of bargain counter selling. In one class of department store it becomes the dominant policy. Some such stores base their business almost entirely on selling under the market, advertising the purchase of bankrupt stocks and mill clearances as making possible such price cutting.

And in nearly all department stores the manager will at times reduce the price upon a staple commodity below that at which his competitors are willing to sell. His increased sales, arising from custom drawn from his competitors and from new consumers brought into the market, decrease the proportion of overhead expense and enable him to purchase in larger quantities. His larger purchases put him in a position to force the producer to share with him the economies of large scale production. Often, indeed, he is able to take over the entire output of certain factories.

In the department store, moreover, the further element enters that customers attracted to purchase a staple commodity at less than the prevailing price will also purchase other commodities yielding a wider margin of profit.

The working of this policy, especially as to bringing new consumers into the market, is shown graphically in Chart I.

CHART I



This chart attempts to show graphically the operation on the demand side of the market of the price policy termed "Selling at the market minus." On the ordinate ox is laid off a scale of prices for the commodity. On the abscissa oy are laid off the number of purchasers. The arc LM shows the number of purchasers at a given price, growing fewer as the price increases and greater as the price decreases.

Now if oa represents the prevailing market price for the commodity, and oc the number of purchasers at that price, it is apparent that if the price is reduced from oa to oa' , the new consumers will be brought into the market and the number of purchasers at the price oa' will be oc' , a number greater than oc .

It is somewhat in this fashion that the policy of selling at the market minus operates but the chart does not indicate the important element that other producers are selling at a higher level, and hence customers are attracted from them, as well as new customers brought into the market.

(2) *Selling at the market* has been the policy perhaps most characteristic of our scheme of distribution during the period when the stress was on production. It is still a common policy in the marketing of staple goods.

This policy consists briefly in the acceptance of the market price existing for the commodity as a fixed condition. The producer does not seek to attract purchasers by maintaining a price level somewhat lower than that at which other producers of the same commodity are willing to sell, nor does he attempt to establish his commodity upon a new and higher price level as a distinct commodity. He recognizes the market price for such a commodity as something objective, and sells his commodity at the established level.

The acceptance of this price policy leaves open to the merchant-producer two general methods of increasing his area of profit. He may devote himself to a reduction in his cost of production by a better organization of his plant, or he may seek to increase his sales, thus giving economies of large scale production and a reduced proportion of overhead expenses.

Examples of the adoption of this policy and the use of the first method of increasing profits are found in the steel industry. The small independent manufacturer often accepts the market price of a given steel product as a fixed condition, sells his "share" of the market, and depends upon reducing his plant costs to increase his profits.

If the merchant-producer adopts this second method, he must, in general, differentiate his product from that of his competitors and build up a demand for his particular product. To do this he must depend upon the same means that would be used to establish his product as a distinct commodity upon a higher price level. Trade marks, brands, and trade names, coupled with niceties of finish, evenness in quality, or more convenient packages, serve as the basis for an increased demand for the commodity upon the same price level as substantially identical products. When selling at the market, superior promptness in delivery may become a factor of great importance in increasing sales.

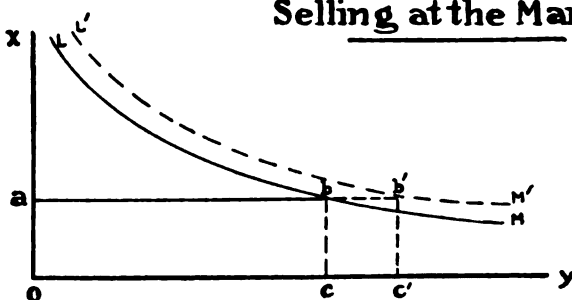
A recent development in the textile industry illustrates the adoption of the policy of selling at the market, combined with an attempt to increase sales at the market price by a differentiation of the product. Apparently the textile manufacturers who are beginning to brand their goods do not seek to establish a new price level for their product as a distinct commodity, but rather to increase their sales by building up a

demand for their commodity as against the product of other manufacturers at the prevailing price level.

Chart II illustrates one phase of this policy. It is intended to bring out the idea that new consumers may be drawn into the market at an existing price level by giving to the differentiated commodity a subjective valuation on the part of the consumer

CHART II

Selling at the Market.



This is an attempt to show graphically the effect of a stimulation of increased demand for a commodity without any increase in the price at which it is marketed.

The ordinate, OX , is a scale of increasing price. The abscissa, OY , shows the number of purchasers. The arc LM indicates the number of purchasers at any given price, growing less as the price is increased and greater as the price decreased.

If the established market price is represented by OA , the number of purchasers at that price will be represented by OC . If then by stimulating an increased demand for his product, the merchant-producer is able to increase proportionally the number of purchasers at each price level, the demand curve LM will be replaced by LM' , and at the price, OA , a greater number of purchasers, OC' , will purchase.

This chart does not, of course, show how customers already in the market are drawn from other merchant-producers to the purchase of a differentiated product for which a demand is stimulated at the same price level as the products of the other merchant-producers.

greater than that which he experienced for the stock commodity of like nature. Hence, while the individual's subjective ratio of exchange was too low to lead him to purchase the stock commodity at the prevailing price, he may purchase the differentiated commodity at that price because of his greater subjective valuation upon the latter.

(3) *Selling at the market plus* is perhaps the most characteristic price policy of modern distribution.

The exceptionally able distributors have in recent years turned more and more to this policy. They refuse to accept as a fixed condition the market price for the commodities similar to those which they produce. They isolate their product, and establish it, practically as a new commodity, on a different price level.

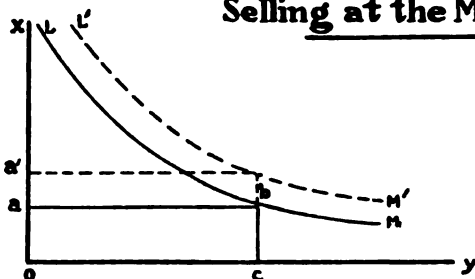
The whole basis of the policy is the differentiation of a product from other goods of substantially like nature by improvements, minor or substantial, and the identification of the product by trade marks, brands, and trade names. This done, the producer stimulates a demand for his product by calling attention to stability of quality, niceties of finish, improvements in package, or like modifications. He appeals to that portion of the consuming public whose subjective valuation upon the stock commodity has left them a so-called "consumer's surplus" over the market price. The differentiated commodity is established on a new and higher price level, and is, to all intents and purposes, a new commodity.

It is this policy that forms the most severe test of the ability of the distributor. To succeed he must have an unusual equipment, including knowledge of human nature, of the psychological organization of the individual consumer, and must be able to give proper weight to such motives as social emulation and all the varied factors that enter into the subjective ratio of exchange of the consumer.

This policy has already been illustrated by examples from the hat trade. Examples are all about us today and further illustration is here unnecessary.

Chart III shows graphically the operation of the price policy termed "selling at the market plus."

CHART III

Selling at the Market Plus.

This chart illustrates the effect of the price policy termed "selling at the market plus." On the ordinate is laid off a scale of prices for a staple commodity. The abscissa shows the number of purchasers.

The demand curve LM indicates the number of purchasers at a given price, growing less as the price increases and greater as the price decreases. Then if OA represents the market price of the staple commodity, OC will represent the number of purchasers. Now if the merchant-producer differentiates his product from the staple commodity and stimulates a demand for it, the effect is to increase the number of possible purchasers at each price level. Thus the demand curve LM is replaced by the demand curve L'M'.

Obviously the merchant-producer may dispose of the differentiated product at a price OA', higher than the price OA, without reducing the number of purchasers, OC. In other words, he can profit by the increased demand through raising his price rather than by increasing his sales.

SOCIAL JUSTIFICATION OF THE DIFFERENTIATION OF COMMODITIES

It is apparent that the process we see going on as a result of the increasing adoption of the policy of selling at the market plus, involving an increasing differentiation of commodities at various price ranges, is closely analogous to the creation of new commodities. When the hat trade splits up into a number of isolated brands, practically distinct commodities at different price levels, the situation is from a social point of view little different from that arising from the creation of new commodities which are not merely modifications of pre-existing commodities.

If the safety razor be regarded, as it properly may, as a new commodity rather than as a modification of the old style razor, it provides us with an opportunity

to examine the social justification for the creation of a new commodity.

When the first widely advertised safety razor was put upon the market at \$5.00 a considerable margin of profit was left the producer. It was often said at the time that the actual cost of manufacture of that razor was less than \$1.00. Now this wide margin made possible an extensive advertising campaign. The new device was brought to the attention of the entire consuming public. Everyone, whether in the large centers or remote districts, learned of the safety razor and its uses. Great numbers purchased the razor because the subjective valuation which they placed on the commodity, when it was brought to their attention, exceeded the price asked. The large reward received by the distributor may perhaps properly be regarded as compensation for bringing about a better adjustment to meet human needs.

Today the safety razor demand is well established and those consumers whose individual ratios of exchange do not render them willing to pay \$5.00 for a safety razor are able to gratify their conscious need at prices ranging as low as \$1.00 owing to numerous producers entering the market with safety razors at varying price levels.

Now when the producer of a commodity already marketed by other producers sets off his commodity from others of like kind, and by sometimes even minor modifications and improvements is enabled to build up a demand for it on a higher price level than that existing for the stock commodity of like kind, he, too, has made possible a more accurate adjustment in supplying human wants, and has brought the possibility of this more accurate adjustment to the attention of consumers. The purchaser of a trade-marked hat at

\$5.00 would buy a staple hat for \$3.00, if the \$5.00 hat did not give him equal or greater proportional gratification, taking into account the differing objective ratio of exchange. Obviously, the consumer who buys a trade-marked hat does so because he prefers to pay \$5.00 for such a hat rather than \$3.00 for an unbranded stock hat. To say that he ought not to be willing to pay the additional \$2.00 for the differentiated product because the modifications are not substantial is to attempt to substitute for the subjective valuation of the consumer as a basis of exchange an external social standard. The more highly differentiated the scale of commodities is, the more accurately will it be possible for the individual consumer to satisfy his varied material wants.

The distributor who is successful in establishing a differentiated product as a distinct commodity on a new price level is, for a time, in the position of having a monopoly as to the differentiated commodity. Such competition as he has is the indirect competition of the staple commodity of like nature. His monopolistic position often enables him to obtain temporarily a margin of profit disproportionate to the actual improvements in the differentiated product as compared with the staple commodity of similar nature. This, again, may be justified as a reward for enterprise in making possible a more exact adjustment of goods to the wants of the consumer. And in the long run, the large percentage of profit will decrease as other producers follow his example and differentiate their products from the staple. The rise of competition at the new price level will ultimately force in the competing differentiated commodities the substantial improvements warranted by the higher price.

Where the differentiation of a product from the staple

goods of like nature is not aimed at establishing a higher price level, but rather at an increase of sales at the prevailing price level, an indisputable social gain appears. Manufacturers admit that when they sell trade-marked goods they find themselves almost unconsciously putting a stress upon quality. The manufacturer of unbranded goods is in some respects like the writer of an anonymous letter; he does not have the sense of responsibility for satisfaction to the consumer that exists when the goods reach the consumers under his name. The manufacturer of unbranded goods makes his goods in general to sell to the middleman; not primarily to satisfy the consumer. It is the realization of this consequence of trade-marking that prompts proposed legislation such as the Campbell Bill, now before Congress, requiring every manufacturer to distinguish his goods by trade mark.

METHODS OF SALE

The general market problem which confronts the business man has been roughly analyzed. The differing modern price policies have been outlined. Something has been said as to the social justification of the increasing differentiation of goods involved in certain price policies. We now may examine the methods employed in selling.

In the early stages of our industrial history, sales were made in bulk. At all stages in distribution, the purchaser saw the actual goods before the sale was made.

Later, sale by sample appeared. The purchaser bought goods represented to be identical with the sample he was shown. The introduction of this method of sale was necessitated by the widening of the market

and was made possible by improvement in commercial ethics and by increasing standardization of the product. The purchaser must have confidence not only in the honest intention of the producer to furnish goods identical with the sample, but also in his ability to produce identical goods. Hence, increasing uniformity in product through machine methods of manufacture was a factor in the increase of sale by sample.

Sale by description is the most modern development in distribution. An even higher ethical standard is required than for sale by sample. Moreover, sale by description requires a higher level of general intelligence than sale in bulk or sale by sample. Sale by description in its modern development is, in a sense, a by-product of the printing press.

All three methods of sale are in use in modern commercial life. The consumer still purchases a large part of the commodities which he uses under a system of sale in bulk. He sees the goods before he buys them. The middleman, buying in larger quantities, generally purchases from sample. But sale by description becomes each year of increasing importance at every stage in the system of distribution. Even where the purchaser actually sees a sample or the goods themselves before the sale is concluded, the method of sale by description has in many cases previously been used to create in him a demand for the commodity. Sale by description is found not only in goods for consumption, but also in the sale of machinery and like commodities. So rapid has been the development that Mr. Edison, the inventor, has said that he expects the store of the future to be upon the slot machine plan, all the goods being sold by description. That even the conception of such an arrangement can arise is significant.

The root idea in sale by description is the communication of ideas about the goods to the prospective purchaser by spoken, written, or printed symbols. This takes the place of the sight of the goods themselves or a sample of them. It is obvious that this requires that the purchaser shall have sufficient intelligence to readily grasp ideas either through spoken, written, or printed symbols.

The use of the term "symbols" rather than "words" is necessitated by the fact that photographs and sketches are today an important feature of sale by description. A photograph of the commodity often serves the purpose of pages of verbal description.

The ideas to be conveyed to the prospective purchaser in sale by description are such as will awaken an effective demand for the commodity in question. The awakening of demand is the essential element in selling. It must be remembered, however, that the distributor has the further task to provide for the possibility of gratifying the demand by making the goods physically available to the buyer. In sale in bulk this problem merges with the selling since the goods are physically present when the sale is made, while in sale by description the physical distribution of the goods is a distinct problem from the awakening of demand. And it is a problem that requires equal attention, for it is useless to awaken demand, unless the goods to satisfy it are made available.

AVAILABLE AGENCIES FOR SELLING

As selling is the initial step in distribution, it is necessary to consider the agencies for selling available to the merchant-producer. There are three general agencies to be considered. These are (1) middlemen,

(2) the producer's own salesman, and (3) advertising, direct and general. The business man faces the problem of what agency or what combination of agencies is the most efficient machinery for the distribution of his particular commodity.

The method of sale adopted will largely govern the choice of agency to be employed. If the sale is to be in bulk, the purchaser seeing the actual goods before the purchase is made, distribution through a series of middlemen is generally most feasible. However, such sale in bulk through the producer's own salesmen is possible in some cases. Small household appliances are often sold in this manner by door-to-door salesmen.

If sale by sample is the general method adapted to the commodity in question, middlemen or salesmen will often be the more desirable agencies. Many commodities are distributed through middlemen, the sale at each stage in the process being by sample save for the final stage from retailer to consumer, where the sale is in bulk. Direct salesmen, perhaps in the majority of cases, sell from sample. And even selling by direct advertising alone is in some cases adapted to a method of sale by sample. Thus the distributor by mail of a commodity which is not bulky may enclose in his direct advertising material a sample of the commodity.

Where sale by description is used exclusively, advertising, direct or general, is likely to be the most efficient agency. Yet here again it is possible, tho generally not economical, to distribute a commodity through a series of middlemen and yet the sale at each stage be accomplished by description. And the use of salesmen in selling by description is common, as where heavy machinery is sold by the use of photographs, or hardware and like commodities from catalogs.

The number of possible combinations of methods and agencies renders the problem of the producer-merchant an intricate one. It will be seen that he has a difficult task in analyzing the market with reference to his goods, and in working out that combination of methods and agencies which will give him the most efficient system of distribution.

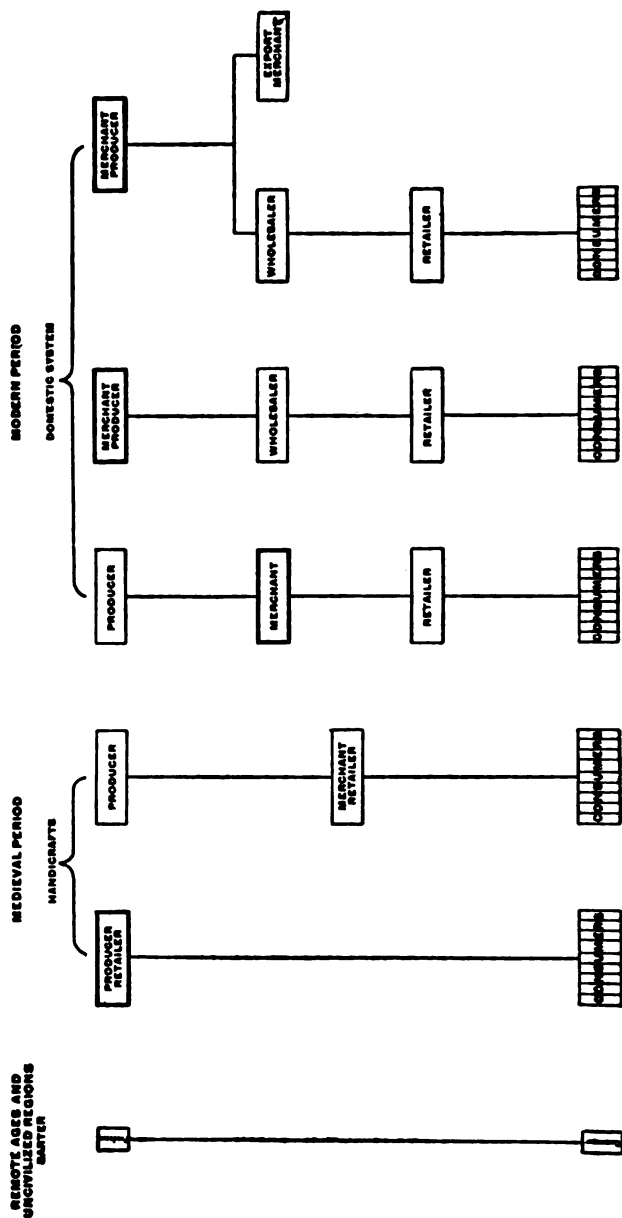
It is necessary, however, to turn to a brief consideration of the position of the middleman as a part of the evolution of organized distribution. The history of the middleman's functions has not yet been adequately studied, but a tentative suggestion may be made in default of the fuller study which the subject deserves.

THE MIDDLEMAN IN DISTRIBUTION

The middleman is a by-product of a complex industrial organization. Chart IV shows in rough outline the evolution of the middleman from the early period when producer dealt directly with consumer to the appearance of the orthodox type of distribution (late in the eighteenth century and in the first quarter of the nineteenth century) when a complicated series of middlemen existed. It should be noted that this chart represents the typical case of the domestic product rather than that of imported commodities.

In the more primitive barter economy, the producer deals directly with the consumer, and middlemen take no part in the transaction. In the mediaeval period, as the handicrafts become specialized occupations under a town market regime, the producer is a retailer and sells directly to the consumers. Then as the market widens, a division of labor is necessary and the merchant appears as an organizer of the market. The handicraftsman becomes a steady worker,

CHART IV
EVOLUTION OF THE MIDDLEMAN



no longer concerning himself with selling. He becomes in many cases practically an employee of the merchant-retailer, who provides the stock and bears the risk. The merchant takes the finished goods from the producer and sells them to the consumer.

Steadily the market widens until we find a national market. The merchant is no longer a single intermediary between the producer and the consumer. The merchant who takes the goods from the producer disposes of them to retail merchants who in turn distribute them to the consumer. After a long period, we find the producers gradually strengthening their financial position, and freeing themselves from the control of a single merchant. They become merchant-producers. They assume the burden of production, and dispose of the product to various wholesalers who in turn sell to retailers, and they to the consumers. As a world market appears, the producer disposes of a part of his product to the export merchant.

In the early days of the factory system, shown in Chart V, we find that the producers have lost their character as merchants and are devoting themselves to the problems of production. The pressure on production has continued, and with the increasing intricacy of industry producers have found it necessary to concentrate their attention on production. The selling agent appears as a link in the chain of distribution to relieve the producer of the task of selling his product. The selling agent undertakes to sell the entire output of the producer, distributes it among wholesalers, who in turn distribute it to retailers, and the retailers to the consuming public.

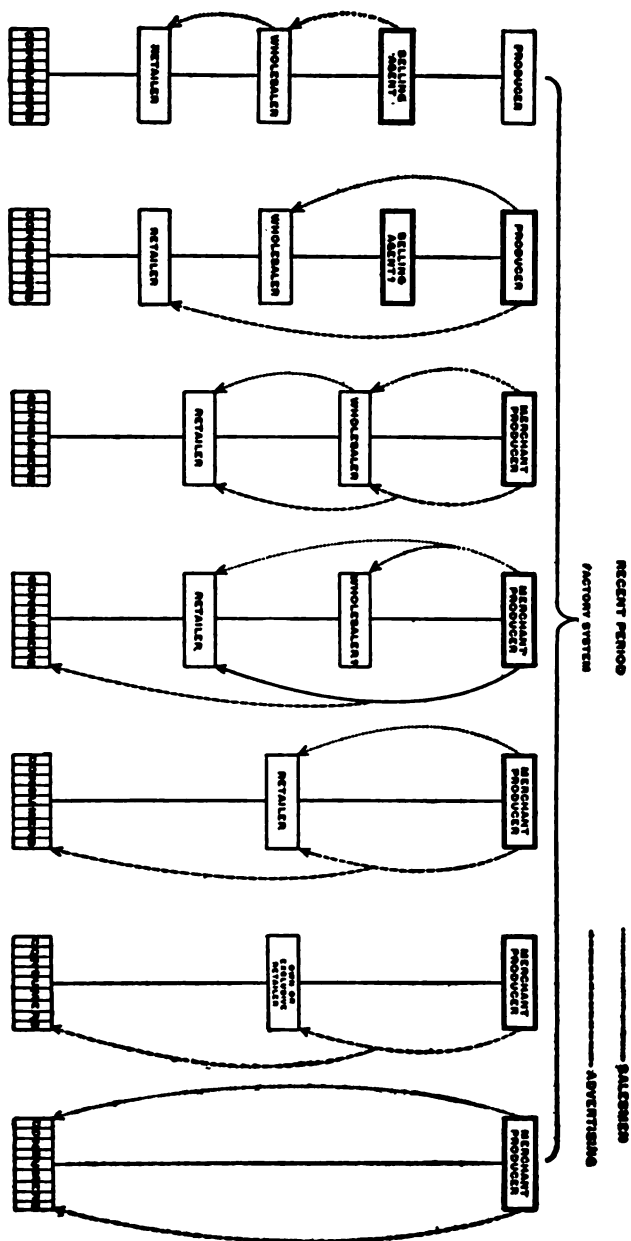
This may be termed the orthodox type in distribution, a type almost universal in the early decades of the nineteenth century, and still common, as in the textile industry in New England.

Just as the long period of development from a system of barter economy to the early decades of the factory system showed a continuous tendency for increase in the number of middlemen intervening between the producer and the consumer, so recent years have shown a growing tendency to decrease the number of successive steps in distribution. The tendency is apparent in nearly every industry and has been clearly marked in recent years.

Under the orthodox type of distribution, with numerous middlemen intervening between the producer and the consumer, the producer is in a position of disadvantage. The fixed charges under which he operates render it necessary that he operate continuously. The outlet for his goods, however, is controlled by middlemen. Hence the middleman is able to exert pressure upon the producer and force a narrowing of his margin of profit. To free themselves from this pressure, the stronger merchant-producers seek to go around the immediate middlemen, thus decreasing the number of steps in the system of distribution.

Chart V is an attempt to show diagrammatically the development of this tendency to decrease the number of successive middlemen. By the use of salesmen going directly to the wholesaler and by advertising directed to the retailer the producer has displaced the selling agent in many cases. Sometimes the advertising is directed not only to the retailers but also to the wholesalers. To strengthen still farther his position the producer will often use advertising directed to the consumer to build up a demand for his product. This involves the necessity for a product differentiated by trade mark, brand, or trade name. When the producer thus directly builds up a demand among consumers, he often takes the further step of

CHART V
MODERN TENDENCY TO REDUCE NUMBER OF SUCCESSIVE MIDDLEMEN.



sending his salesmen to the retailer, thus omitting the wholesaler entirely from his system of distribution.

The most extreme step in the process is the complete elimination of middlemen, and the sale direct from the merchant-producer to the consumer, either by advertising alone or by salesmen supplemented by advertising. Manufacturers of specialties have largely adopted this scheme of distribution and the enormous growth of the mail order business in recent years gives evidence that in some lines of distribution there are economies in this system.

The tendency to decrease the number of middlemen is one of the most characteristic features of modern distribution. It promises to show much greater development in the future if present economic conditions substantially continue. The attempts of associations of retailers to check the growth of direct selling have thus far not been successful. In their desire to force the manufacturer to dispose of his product through regular trade channels they sometimes invoke the boycott. But our common state statutes, prohibiting combinations in restraint of trade, prevent effective agreements to boycott producers who sell direct. And the advantages of direct selling in some lines render the producer willing to incur the disfavor of the trade.

It should be noted, however, that changed conditions might give the middleman increased importance. Suppose, for instance, that the protective tariff system of the United States were to be swept away and free trade instituted. The middleman could then draw upon the foreign producer for supplies of unbranded staple goods, which might serve to increase his importance as a link in our system of distribution. While this would perhaps tend to increase the number of

successive middlemen in some lines, it is probable that when the foreign producer in turn was subjected to pressure by the middleman, he, too, would tend to go around him and deal directly with the consumer.

ANALYSIS OF THE FUNCTIONS OF THE MIDDLEMAN

To understand what seems to be a present tendency to go around the middleman as well as to consider the problem of the merchant-producer with reference to the use of middlemen in distribution, it is necessary to analyze the functions performed by the middleman. Roughly the general functions may be listed as follows:

1. Sharing the risk.
2. Transporting the goods.
3. Financing the operations.
4. Selling (communication of ideas about the goods).
5. Assembling, assorting, and re-shipping.

These functions were at first taken over by areas; that is, each successive middleman in the series took over a part of each function. Each took the risk of destruction of the goods while he held title. Each took the risk of credit losses. Each took a share in the transportation of the goods along the route from the producer's stock room to the hands of the consumers. Each took a part in financing the entire operation. Each had a part in the selling, disposing of the goods he purchased to succeeding middlemen and finally to the consumer. And each finally took a part in assembling, assorting, and re-shipping the goods to make them physically available to the consumer.

But at a relatively early date a taking over of these functions by kind instead of by area appeared. Today

we have what may be termed functional middlemen in the insurance companies, direct transportation companies, and banks.

The insurance company is in a real sense a middleman in distribution. When it insures the producer against loss of goods by fire, against credit losses, and the like, it is taking over the function of risk formerly shared by successive middlemen. Today the insurance company will assume practically the entire element of risk. It is possible, for instance, for a large department store to insure against unseasonable holiday weather. The insurance company differs from the ordinary middleman in that it takes over one function as such rather than portions of a number of functions.

So improvements in direct transportation have enabled the producer to turn to a functional middleman to convey the goods to the consumer. The transportation companies and the express companies are in a true sense middlemen in distribution, tho they perform but one of the functions formerly shared by the successive middlemen who took over functions by area. The physical conveyance of the goods to the consumer was formerly one of the most important functions performed by a series of middlemen. Hence every improvement in the agencies of direct transportation has tended to modify existing systems of distribution. It is this fact that gives enormous importance to the projected establishment of a parcels post. The innovation will, of necessity, carry with it radical readjustments in our present system of distribution.

So the function of financing the operations has largely been taken from the regular middleman. In former times the middleman took his part in the burden of finance in addition to his other functions. It is true today in the textile industry in New England that the

selling agent is as much a banker as a mere agency for the sale of the goods. This is accomplished, however, by the selling agent endorsing the commercial paper of the producer, giving a two name paper acceptable by savings banks in that region, and hence making possible a lower rate of interest.

In most industries today the bank, as a functional middleman, cares for the element of finance in the operations of distribution. By advancing on goods and on commercial paper, it largely absorbs the function of finance in distribution. Legislation providing for an asset currency based on commercial paper might considerably widen the range of the banks' activity in the commercial field.

Another development has lessened the dependence of the producer upon the middleman for financial assistance. The application of the corporate form to industrial organization has made it possible to draw together larger bodies of operating capital and hence to place the producer in a stronger financial position.

As a result of the development of functional middlemen, ready to take over the functions of sharing the risk, transporting the goods, and financing the operations, the importance of the middleman for these functions has diminished. There remain the function of selling (the communication of ideas about the goods) and the function of assembling, assorting, and re-shipping. It is as to these functions that the middleman is of most importance today.

Under the orthodox type of distribution which we have considered above, the producer is not in any sense a merchant. The selling agent takes upon himself the initial distribution of the entire output. He sells the goods to the wholesaler. The basis of the sale is that the wholesaler can dispose of the goods at a profit to

the retailer. The wholesaler in turn sells the goods to the retailer. Again the inducement to purchase is not primarily quality or service but the opportunity to resell at a profit to the actual consumer. Only when the retailer comes to sell to the consumer does stress fall upon quality and service, as the inducement to the sale. Hence the ideas to be conveyed to the prospective purchaser to create in him a demand for the goods vary at different steps in the complicated process of distribution, because of the different points of view of those who buy for re-sale and those who buy for consumption. Price and saleability are the all important factors to the middleman; quality and service are as important to the consumer as price.

The tendency of the orthodox system of distribution of unbranded commodities is to turn the energies of the producer primarily toward lowering the cost of production and hence the price which he is able to offer the middleman. The influence of satisfaction or dissatisfaction on the part of the consumer comes to him only indirectly through a chain of middlemen. Moreover, where the goods are undifferentiated by trade mark or trade name, their identity is often completely lost in the successive stages of distribution. Even the retailer in many cases concerns himself rather with saleability than with ultimate satisfaction to the consumer. Hence, only marked defects in quality are likely to be brought to the attention of the producer. Thus the producer loses the touch with the consumer which will assist him to make improvements in quality and service in his goods. His attention is not forced upon those elements in the commodities which he manufactures. So under the orthodox type of distribution of unbranded commodities the standard of the producer tends to become saleability rather than satisfaction to the consumer.

Suppose, however, the producer does give conscious attention to elements of quality and service in his goods which render them more desirable from the standpoint of the ultimate consumer than other goods of like nature. Before the knowledge of these superior points reaches the consumer it must pass through the distorting medium of a chain of middlemen, who are not, for the most part, primarily interested in quality or service and no one of whom ordinarily gives undivided attention to the single commodity. The ideas that the retailer must communicate to the consumer to create in him a desire for the commodity are not the ideas which the wholesaler conveyed to the retailer to induce him to purchase.

Hence a producer who has added to his goods special advantages in quality or service finds it difficult to convey to the consumer through a chain of middlemen the precise ideas about those advantages that will lead the consumer to demand his goods in preference to those of another.

These considerations render the increasing communication of ideas about the goods by the producer directly to the consumer an improvement of great social significance in our scheme of distribution. The producer is forced to study the consumer's wants and to adjust his product to them. He can no longer devote his attention exclusively to cost. He realizes that the consumer's satisfaction depends on the quality of the goods and the service that they render. These become to him considerations as important as that of cost. Moreover, when he works out in his product some improvement in quality or service which more adequately adapts the commodity to the wants of the consumer, he is able to convey to the consumer precise and accurate knowledge of these improvements and to

reap in increased demand for his product the reward for his efforts. Direct selling means, of necessity, a better adjustment of production to the needs of the consumer. Goods are being made to satisfy rather than to sell.

Obviously direct selling depends on a differentiation of commodities. The producer can effectively communicate ideas about his goods directly to the consumer only when the consumer is able to identify the goods. Where the physical distribution is through retail stores, the goods must be distinguished from other goods of like nature by trade mark, brand, or trade name, or the direct selling efforts of the producer are wasted.

The advantages of direct communication of ideas about the goods by the producer to the consumer as just outlined coöperate with the desire of the producer to escape pressure exerted by the middleman. As a result we find in the past half century and especially in the past decade a rapid adoption by producers of agencies for direct communication of ideas about the goods to the consumer. This means that another function formerly divided among middlemen is being taken over as a function. The newspapers, periodicals, and other advertising agencies may hence be termed functional middlemen, as were the insurance companies, the transportation companies, and the banks. And with the rise in importance of those functional middlemen the position of the old type of middleman is again weakened.

We have still to discuss the function of assembling, assorting, and re-shipping. This function is that which renders the goods physically available so that an aroused demand can be gratified. Here the middleman retains, for the most part, his importance. To

be sure we find direct shipment from producer to consumer steadily increasing. This is to be expected as a consequence of the direct communication of ideas about the goods by the producer to the consumer. But in the more important lines today the consumer still depends on the retail store for the supply of the goods for which a demand has been stimulated and the retail store in general turns for its supply to the wholesaler.

The problem of the distributor is two-fold: (1) to arouse a maximum of demand, and (2) to supply that demand with a minimum of leakage. The second phase of the problem involves the elements of time, convenience, and service. If the demand which has been aroused among consumers is to be fully utilized, it must be made possible for them to obtain the goods promptly when the demand arises. It must be convenient for them to obtain the goods. And in many cases, certain collateral services such as instruction, demonstration, and repairs must be given. It is here that the retailing middleman still retains his importance in most lines. If, when a conscious demand has been raised for a certain food product by the direct communication of ideas about the goods by the producer to the consumer, the latter is unable to find the product at a convenient grocery store, the aroused demand is likely to be ineffective. Hence the producer will often continue to distribute his product through the regular trade channels after taking over the selling function by directly communicating ideas about the goods to the consumer. Distribution by mail order and direct shipment by the producer have thus far proven applicable only to certain commodities and in reaching certain sections and classes. The middleman is a social necessity.

When a producer begins to communicate ideas about goods directly to the consumer to arouse a demand, it is apparent that the middleman is performing only a part of the functions he previously performed. On strict economic grounds the margin of profit of the middleman should be reduced in proportion to his reduced functions.

As compensation for this reduced margin of profit on each sale, the middleman obtains a rapidity of turnover due to the selling efforts of the merchant-producer. But the middleman is often slow to see this compensating feature. He usually resists any attempt to reduce his discounts because the producer has taken over the selling function. If his compensation per sale is reduced he may refuse to handle the article. It is fair to say, however, that many progressive retailers are appreciating the possibilities of more rapid turnover of stock and are adjusting themselves to the changed conditions.

Now if the producer takes over the selling function and does not reduce the discounts allowed the middleman, the middleman is being paid for a function he no longer exercises. And ultimately this must come out of the pockets of the consumer. He is compelled to pay twice over for the exercise of a single function.

The opposition of middlemen to reduced compensation upon reduction in their functions presents a difficult problem to the producer. Often the producer postpones taking over the function of selling by direct communication of ideas to the consumer because he sees that he must continue to allow the middleman compensation for that function if he is to continue to use the middleman for the physical distribution of the goods. Sometimes the producer is forced to establish branch stores and so eliminate all middlemen from

his system of distribution. This, however, is generally possible only in large centers of population and applicable only to certain classes of goods. The system of distribution through branch stores is illustrated in its application by certain large producers of trade-marked shoes.

It is, however, feasible in many lines of trade-marked goods to take over the assorting, assembling, and re-shipping function of the wholesaler rather than to continue to compensate him for the selling function no longer performed. For example, one large paint manufacturer, who stimulates a demand for his branded paints and varnishes largely by direct communication of ideas about the goods to the consumer and to the retail paint dealer, found it desirable to drop out the wholesaler from his scheme of distribution. He finds in branch houses certain marked advantages. (1) He is able to obtain the entire time of trained men, devoted solely to the handling of his products. (2) He obtains a direct contact with the retail dealer, who, he finds, prefers on the whole to buy directly from the manufacturer. (3) He is enabled to carry larger and better assorted stocks than the wholesaler would be willing to carry. (4) In his experience the credit losses are less when the wholesaler is eliminated. (5) He obtains better control of general policy and prices. The larger capital required for a system of branch houses is an objection of decreasing importance owing to the rapid increase in the available capital fund and its greater fluidity. And the increased need of managerial ability is being met by improved systems of training men for managerial responsibilities.

This rather lengthy analysis of the position and functions of the middleman in distribution is still incomplete. Factors not of an economic character enter. The

business man seldom faces a problem on purely economic grounds. There is always a human element to be considered, arising from the character of transactions as they exist in actual commercial life. One does not buy of a dealer solely upon narrow economic grounds. Social and personal considerations play their part. Hence, when the business man considers the position of the middleman in his own scheme of distribution, his problem is complex. Its solution is likely to be found in the rise of a class of efficient and progressive middlemen who take advantage of the producer's selling efforts in more rapid turnover of stock and provide the necessary physical distribution of the goods at a reduced percentage of profit on the unit sale with an increased annual profit.

THE PRODUCER'S SALESMAN AS AN AGENCY IN DISTRIBUTION

A less detailed analysis than was necessary in the case of the middleman will be required for the salesman. The primary function for which salesmen are used is the communication of ideas about the goods to the prospective purchaser; that is, the selling function.

The salesman, in the sense of a man sent to prospective purchasers, generally sells from sample. In some few cases the sale may be in bulk, the salesman showing the prospective purchaser the actual goods to be purchased. And as has been suggested, the salesman may sell entirely by description, merely showing the prospective purchaser pictures of the goods, as in selling from catalogue.

When the producer finds it desirable to go around a middleman and to sell directly to a subsequent middleman or to the consumer, he may use for the selling

function either his own salesmen or advertising, or the two in combination.

When one analyzes the salesman as an agency for sale by description in contrast with advertising, direct or general, he must take into account the human element again. Advertising has the obvious advantage that you can convey exactly the idea you wish to convey in the form you wish to convey it. It lacks, however, the personality and the timeliness of the salesman's visit; it lacks adaptability, the opportunity to use the mood of the customer and all the various human factors that make the salesman effective.

More than this, when the salesman has aroused in the prospective purchaser a demand for the goods in question, he is on the ground to close the sale at once. In the case of advertising, the demand aroused must, in general, be strong enough to lead the prospective purchaser to go to some trouble before he obtains the actual goods. Hence a less intensive demand may be more immediately effective in the case of the salesman than when advertising is concerned.

It should here be emphasized that the analogy between direct salesmen and advertising is very close. Each agency is largely used to enable the producer to take over one function of the middleman, that is, the selling function. And in each case the root idea is the same. The producer seeks to communicate to the prospective purchaser through one or the other agency, or a combination of the two, such ideas about the goods as will create a conscious demand for them. The direct salesman and advertising are different modes of accomplishing the same end.

ADVERTISING AS AN AGENCY IN DISTRIBUTION

Advertising in the modern commercial sense is of comparatively recent development. Only in the middle of the nineteenth century did it commence to be of real importance in the commercial world. And as in its early extensive use that for the sale of proprietary medicines of doubtful value predominated, it was at first somewhat in bad repute as an agency in distribution. This notion lingers among many economists, who are satisfied to condemn casually advertising under the name "puffing," and who fail fairly to analyze its position as an agency in our scheme of distribution.

That there are evils and abuses in connection with advertising today may be frankly admitted. It is a new economic agency, and ignorance of its true function causes wasteful use. Moreover it lends itself to conscious misuse. So the factory system carried with it evils which were far greater a century ago than today. And just as the factory system, by gathering together large bodies of workers, drew attention to evils which existed unnoticed under the domestic system of manufacture, so advertising tends to bring into the lime-light of publicity certain evils which existed as well in sale through other channels. But these are rather undesirable and non-essential incidents than anything fundamental in the thing itself. The evils must be recognized and combatted, but should not cloud the fact that advertising is today an element of tremendous importance in our economic organization. The steady and remarkable increase in advertising evidences its efficiency as a selling force. In the United States we are expending annually upon advertising, in its inclusive sense, not less than

a billion dollars. This is a cold economic fact which renders advertising worthy of serious analysis.

Advertising is a necessary consequence of sale by description. It has been pointed out that so long as the prevailing code of commercial ethics made sale in bulk the only practical method, the middleman was an indispensable selling agency. As business morals bettered and manufacturing methods improved so that a standardized product could be turned out, sale by sample appeared. Then it became possible for the producer to send his own salesmen with a sample to the prospective purchaser instead of being dependent solely upon the selling efforts of a middleman. And then, when sale by description appeared, with an even higher ethical code and a higher level of general intelligence, a third selling agency became possible. In advertising, as in selling through salesmen, the producer communicates ideas about the goods to the prospective purchaser to raise in him a demand for the goods. While the purchaser demanded that he see the actual goods before purchasing, sale by advertising was impracticable. While he still required to be shown a sample of the goods, advertising was not in most cases feasible. But now that the general average of intelligence enables the prospective purchaser to gain an idea of the goods without seeing them and without seeing a sample, and now that the prevailing code of business ethics is such that the prospective buyer feels that he may rely upon the description given him, advertising becomes in many lines the most economical agency for the exercise of the selling function. Even where the actual sale is made by salesmen from sample, advertising is used as a supplementary agency to build up a demand which the salesman crystallizes. And sale by advertising alone may be

applied today even where the purchaser demands to see the goods before concluding the purchase, by sending the goods to him on approval.

Not only is the modern development of advertising dependent upon the possibility of sale by description, but it also depends upon the increasing differentiation of commodities by trade marks, brands, and trade names. As before suggested, the producer cannot profitably convey to the consumer ideas about a certain food product which will build up a demand for that product, unless the consumer is able to identify the particular product when he goes into the grocery store to purchase it.

Advertising, then, may properly be regarded either as a substitute for middlemen and salesmen or as auxiliary to them in the exercise of the selling function. Owing to the rise of sale by description and the increasing differentiation of commodities, it tends to displace in many lines of distribution these other agencies in whole or part as a more economical and efficient means of communicating with the consumer.

Advertising, in the sense here used, is to be defined as the communication to possible purchasers by written or printed symbols of ideas about the goods, designed to create a demand for the goods. In this broad sense it includes not only selling letters and circulars, but newspaper and periodical advertising, bill-boards and window cards, electric signs, street-car advertising, catalogs, and all the varied forms of modern commercial publicity. A rough classification is made between general and direct advertising. General advertising includes newspaper and magazine advertising, bill-boards, electric signs, street-car advertising and the like, aimed at the general public or some section of it. Direct advertising is used in

reference to the sending of selling letters, circulars, or catalogs to the persons whose names appear on a mailing list and to reach whom the material sent is specially adapted. This classification is of some importance in discussing advertising as an agency in distribution.

We cannot here attempt an adequate discussion of modern advertising in its varied phases. And it is perhaps not necessary, so much is it today forced upon the attention of each of us. To realize the machinery now provided for the direct communication of ideas about goods, one has but to consider that a single publishing company today reaches through two magazines about three and three-quarters million families; that there were in this country in 1911, according to the *Statistical Abstract*, 22,806 newspapers and periodicals. A fair measure of the development of advertising in recent years is found in the rapid progress of invention to facilitate advertising, — photography, the half-tone process of reproducing photographs and drawings, the three-color process for such reproduction, the cheapening and perfecting of papers, inks, and printing, and better reproducing machinery.

Advertising is now being extended to fields where its use not many years ago was undreamed of. Ten years ago an advertising man would have said it was impractical to advertise papers; today enormous sums are expended on general advertising of papers for writing and printing. Advertising is even being used in fields other than commercial distribution. The railroads annually buy large quantities of newspaper space in which they present facts intended to build up a public opinion favorable to the railroads as a check on adverse legislation. And advertising by the railroads to secure passenger and freight traffic has reached enormous proportions.

It is necessary to include in this hasty and incomplete analysis of advertising as an agency in distribution a reference to the character of the demand aroused by advertising. Advertising may be said to build up three general classes of demand: (1) expressed conscious demand, (2) unexpressed conscious demand, and (3) subconscious demand.

The three classes may be illustrated by supposing a product for sale by grocers to be advertised in a periodical of large circulation by a double page costing for one insertion \$8,000. If as a result of the advertisement 30,000 people go to the grocery and buy the product, 60,000 plan to purchase the product at some future time when such an article is needed, and 100,000 more become open to a further exciting force, such as seeing the product at the grocery and recognizing it as one advertised, then we should call the 30,000 the expressed conscious demand, the 60,000 the unexpressed conscious demand, and the 100,000 the subconscious demand resulting from the advertisement. Expressed conscious demand means present sales; unexpressed conscious demand means future sales; subconscious demand means that the field has been fertilized so that future selling efforts will be more fruitful. Unexpressed conscious demand and subconscious demand are difficult of measure but must always be taken into account in any consideration of the efficiency of advertising as a selling agency.

PURPOSE OF FOREGOING ANALYSIS

What has gone before has all been by way of analysis. The general problem of distribution, the present day differentiation of products, the price policies open to the producer, the methods of sale, and the three chief

selling agencies have all been subjected to hasty review. This has been rendered necessary by the fact that neither economists nor business men have previously made such an analysis.

Tho what follows is by way of practical suggestion to the business man, the social significance of the problem must not be forgotten. While a more systematic handling of distribution problems means to the business man business success, a better organization of distribution means to society the prevention of an enormous annual waste. It is not alone that a considerable part of the billion dollars annually expended on advertising is wasted, that expenditures are often unwarranted and ill-directed, and that the distributor often fails to take advantage of the demand aroused by making the goods physically available at the time and place they are wanted, but also that our cumbersome and chaotic system of distribution adds materially to the cost of goods to the consumer. It is to the costly and awkward machinery of distribution that the Tariff Board refers in its *Summary of the Report on the Cotton Schedule*, submitted to the President, March 22, 1912:—

“On account of more costly methods of distribution in this country from producer to consumer, the latter pays a decidedly higher retail price than the European consumer, even in the case of fabrics on which the cost of production and the mill price are as low here as there.”

Nor is the social importance of improvements in distribution a matter merely of reducing the cost of products to the consumer. Our ill-organized system of distribution means that the consumer is not able readily and accurately to satisfy his needs. And this unfortunate condition is not inevitable.

While it is true that up to this time the facts of distribution have not been gathered, described, and classified in such a way as fully to indicate tendencies and underlying principles, yet the way is open to a better organization. The business man must apply to the problems of distribution methods of systematic study that have been successful in other fields of human knowledge. There is an increasing need of scientific research methods in business. As business becomes more highly integrated, mere intuition must play a smaller part, and a scientific approach to the problems arising is demanded. And a scientific approach to the problems of distribution is feasible.

The ordinary business man today markets his product by rule of thumb. He gambles on his business instinct. The success or failure of a selling campaign is almost his sole source of knowledge as to whether his business instinct was a safe guide. If his past experience with other commodities has indicated that one agency or another of selling is more efficient, then he will adopt that agency for commodities which he subsequently attempts to market. If he compares the different agencies, it is through the average cost of selling by one or another agency. Thus if he finds over a short period that the average cost of selling a product through middlemen is less than the average cost of selling it through salesmen and advertising, he relies solely upon the former method. He does not wait to analyze the market as a basis for his consideration of the most economical agency. As an advocate of one particular method of selling, he does not always realize that an agency which is most economical for distribution in one section or stratum of the market may not be so in another. And least of all does he systematically test the ideas to be conveyed, and the very forms of expression, that are the basis of his selling efforts.

ANALYSIS OF THE MARKET

The business man must first realize the intricacy of the problems he has to solve. He must analyze his market. Enough has been said to indicate the complexity of the market problem. The business man faces a body of possible purchasers, widely distributed geographically, and showing wide extremes of purchasing power and felt needs. The effective demand of the individual consumer depends not alone upon his purchasing power but also upon his needs, conscious or latent, depending upon his education, character, habits, and economic and social environment. The market, therefore, splits up into economic and social strata, as well as into geographic sections.

The distributor cannot disregard the geographic distribution of the consuming public. He may be able to sell profitably by salesmen where the population is dense, while such method of sale would be unprofitable in a region where there is a sparse population. If he bases a judgment upon the average cost of selling by salesmen for the whole market, he may well go wrong, since the average might show that the use of such an agency was on the whole profitable, while yet in some sections entering into the average the use of salesmen was actually unprofitable. Again, it might be economical for the distributor to establish his own branch stores in the denser urban centers, while in the sparsely populated regions he could most profitably distribute his product through the regular channels.

If, then, a sound system of distribution is to be established, the business man must realize that each distinct geographic section is a separate problem. The whole market breaks up into differing regions.

Equally important is a realization of what may be

termed the market contour. The market, for the purposes of the distributor, is not a level plain. It is composed of differing economic and social strata. Seldom does the ordinary business man appreciate the market contour in reference to his product. Yet obviously the success of the producers of trade-marked hats depends upon a realization of this element of market contour. The distributor of a staple hat at \$3.00 appeals to different economic and social strata, faces different considerations, and finds different selling methods necessary, as compared with distributors selling a \$5.00 trade-marked hat, or those distributors selling \$4.00 or \$6.00 trade-marked hats. Differences in economic and social strata to be reached are as important as differences in geographic location and density, if a sound system of distribution is to be worked out.

Take the distributor who seeks to map out a selling campaign for a Catholic publication. It is essential that he take into account not merely the geographic distribution of the Catholic population in the United States, the regions where it is relatively dense, and the regions where it constitutes a small element in the population, but also he must take into account the distribution of that population through the economic strata of society. A method of distribution successful in New Orleans, where the Catholic population is dense and spread through all economic strata of society, might well fail if applied in Maine, where the Catholic population is relatively sparse and found mostly in the lower economic strata.

A careful analysis of his market, then, by areas and by strata, is the first task of the modern distributor.

CHOICE OF AGENCIES IN DISTRIBUTION

Nor does the merchant-producer ordinarily realize how intricate is his problem as to the agency or combination of agencies that will be most efficient in reaching his market. As has been suggested above, the business man often adopts one method and becomes an advocate of it, disregarding entirely other methods. While the method adopted may be more efficient than any other *single* method, it is apparent that a method which is relatively efficient in reaching one area may be inferior to another method in reaching another area. And so a system of distribution which has proven very effective in reaching one economic stratum may be relatively inefficient when employed to reach a different economic stratum in society.

The problem, then, of working out the most effective combination of agencies is a most complicated one. Each distinct area and economic stratum must be treated as a separate problem, and, moreover, the economic generalizations embodied in the Law of Diminishing Returns must be taken into account in choosing that combination of selling agencies which will give, in the aggregate, the most efficient organization of the market.

Thus the distributor may find as he extends his operations in his immediate territory, geographically, that his selling cost steadily decreases, but that when he further extends his market the selling cost increases. He may find that in more distant areas selling by salesmen ceases to be profitable, and there he will perhaps establish a more economical system of selling by a combination of salesmen and circular letters. That is, he may reduce the number of visits by salesmen by one-half, and supplement their efforts by a

of them were (subsidiary corpo

In a sense this method of proceeding has been the only one to such a process. The immediate object of the concern in the case is to invest absolutely the land and factories with various subsidiary as soon as possible. Rand and the Hazard Dynamite Company and Delaware Investment's suit not probably been attended to in a unique form of incorporation of the dissolved company and the title property of the courts. The problem of the courts have been apparently a great deal involved in either decisions. As the case of more than sixty the new management impossibility of re-explosives trade, no decree we may make

The Circuit Court of restraint of commerce

¹ Cf. List of Companies "C"

32.

² Ibid., pp. 31-32.

³ Interlocutory Decree, pp

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l by several persons.

lling policy, then, must be built up on a sis of the market in areas and strata,

series of circular letters or more personal correspondence. In even more distant areas, it may be necessary to eliminate the salesmen entirely and to sell only by direct advertising.

Perhaps enough has been said above, in analyzing the functions of the middleman and the extent to which the rise of functional middlemen has made alternative agencies of distribution possible, to free us from the necessity of here pointing out at length how complicated is the problem presented when the business man balances distribution through middlemen against direct selling through salesmen and advertising.

Attention must be called, however, to considerations that enter when one compares the use of salesmen with the use of different forms of advertising. The business man will often judge between different selling agencies solely upon the basis of the direct return over a short period. In discussing advertising we spoke of three classes of demand aroused by selling effort: (1) expressed conscious demand, (2) unexpressed conscious demand, and (3) subconscious demand. The direct and immediate return from selling efforts depends solely on expressed conscious demand. But the business man must take into account the unexpressed conscious demand and the subconscious demand. Suppose a smoking tobacco is advertised. A man notices the advertisement, reads it, and decides that at some future time he will try it, and perhaps months later does so. This is not reflected in the direct immediate returns, yet clearly is a result to be taken into account. Or suppose a man merely notices the advertisement. At a later date when purchasing tobacco, he is shown the advertised brand with other brands. The advertised brand being vaguely familiar to him from the advertisement, he purchases it in preference

to the others. Here, too, the aroused demand would be of a degree not reflected in direct immediate returns, yet of value to the distributor.

It is obvious, then, that if one were balancing the advantages of selling through salesmen as against selling through advertising in whole or part, he should consider not only the expressed conscious demand reflected in the direct immediate returns but also the lesser degrees of demand which, while not immediately effective, tend to render subsequent selling easier.

Thus a salesman might make fifty calls at an expense of \$100, and ten sales might result from his efforts. Or for the same \$100, 5,000 pieces of direct advertising might be mailed, resulting perhaps in only eight sales. Or, perhaps, if the same \$100 were used for the insertion of a page advertisement in 100,000 of the circulation of a standard magazine, only six sales would result. Now it is apparent that judging by the direct results, the salesman is the most efficient agency of distribution, the direct advertising next, and the magazine advertising least efficient. But the distributor must bear in mind that there are grades of demand which do not become effective immediately, and must take into account that while the salesman made ten sales he had only forty opportunities to create these lesser grades of demand, while the direct advertising gave 4,992 opportunities for the creation of demand falling short of expression, and the magazine advertising, perhaps, 49,994 such opportunities, assuming for our present purpose that the advertisement was seen in one half the copies by one person. This is not an improbable supposition as each copy of a magazine is usually read by several persons.

A sound selling policy, then, must be built up on a careful analysis of the market in areas and strata,

and upon a detailed study of the proper agency or combination of agencies to reach each area and stratum, taking into account always the economic generalizations expressed in the Law of Diminishing Returns. It must also take into account not only the direct results obtained from the use of one or the other agency over a short period, but also the less measurable results represented by the unexpressed conscious demand and subconscious demand, which go to aid future selling campaigns.

LABORATORY STUDY OF DISTRIBUTION

All this tends rather to give a general sense of direction than to serve as a practical and tangible method of handling a specific problem of distribution. A clear grasp of the problem through a careful analysis is the first step in solving difficulties. To suggest any cure-all or even any panacea for the existing maladjustments in distribution, even were it possible, is not the purpose of this paper. The very complications revealed by analysis indicate the inadequacy of any single remedy. But it is possible to face the problem of remedy as well as of diagnosis in a scientific spirit, — to introduce what may be termed the “laboratory method.”

The crux of the distribution problem is the proper exercise of the selling function. The business man must convey to possible purchasers through one agency or another such ideas about the product as will create a maximum demand for it. This is the fundamental aim, whatever the agency employed. Hence this is the point where a scientific study of distribution must first be applied. How is the business man to determine what ideas are to be conveyed to the possible

purchaser and what form of expression is best adapted to such conveyance ?

Here, as elsewhere in distribution, the ordinary business man is today working by rule of thumb. He *guesses* at the suitable ideas and forms of expression, and gambles on his guess. On the basis of his *a priori* selection of ideas fitted to build up a demand for his product and of a form of expression suited to effectively convey the ideas, he invests tens, even hundreds, of thousands of dollars in a selling campaign.

The more able business men, to be sure, seek to determine those facts about their goods that will attract the attention of the possible purchaser and awaken in him the desired reaction, that is, a demand for the article. They study in a general way the points of superiority in quality and service possessed by their products as compared with other goods of like kind.

They also seek guides as to the form in which the ideas should be conveyed, in the general principles of style, all based on the fundamental notion of conserving the prospective purchaser's mental energy by cutting down the friction of communication. They know, for instance, that they should use short familiar words expressing their exact shade of meaning; that they should give preference to figurative language; that they should suggest a concrete image only after the materials of which it is to be made are conveyed; that they should avoid abstraction and generalization where possible; that when they are suggesting the reaction desired their language should become quick, sharp, and compelling.

These things the more efficient business men know and apply. But all this is *a priori*. The need is for a method of practical test that will enable us to try out

selling ideas and forms of expression, under laboratory conditions, as it were, before the investment of thousands and hundreds of thousands of dollars is staked on the success of the selling campaign.

Mention has been made of the annual expenditure of not less than a billion dollars in advertising. Unquestionably an extremely large percentage of this is wasted. This means not merely individual loss, but social loss. It is a diversion of capital and productive energy into unprofitable channels.

The causes of this waste are numerous. The commodity in question may be one not possessing those elements of quality and service which constitute the basis for a demand on the part of the consuming public. If the goods advertised are not adapted to satisfy a need, conscious or subconscious, of consumers, the advertising cannot be effective. Attempting to sell a thing that nobody needs is wasted effort.

Again, the medium used for the communication of the ideas about the goods may not be one that reaches the particular economic or social stratum in which possible purchasers of the commodity lie. Hence the ideas fail to create a demand because they do not reach those in whom a latent need for the commodity exists.

Another important cause of advertising waste is in the failure to take advantage of aroused demand. The distributor often fails to give proper attention to the matter of the mechanical distribution of the goods. There results a considerable leakage in demand from the inability of persons in whom a demand has been created to obtain the goods at the time when desired.

But the great cause of waste is probably the fact that the ideas about the goods, or the form in which those ideas are conveyed to possible purchasers,

proves ill-adapted to secure the desired reaction, and thus to create in the consumer an effective demand.

If we can apply to this pressing problem of advertising waste methods of study which have proven efficient in other fields, the gain is clear. The engineer does not choose material for a bridge by building a bridge of the material and waiting to see whether it stands. He first tests the material in the laboratory. That is what the business man must do.

The statistician turns in his problems to the law of averages. He is familiar with what are termed mass phenomena. He knows that he can learn something of the average height of a body of people by studying the heights in a group of a few thousands of people drawn at random from the larger body. Provided that the smaller group is not so selected as to prevent it being typical of the larger body, and provided the group is large enough to render the law of averages applicable, the statistician knows when he has determined the average height of the smaller group that it will roughly coincide with the average height of the larger group.

This method of study can be applied by the business man in testing the ideas and forms of expression to be used in a selling campaign. In direct advertising, the mailing of selling letters, circulars, or catalogs to prospective purchasers to draw from them an order for goods as evidence of an awakened demand, you have a stimulus and response adapted to direct statistical measurement. The number of responses per thousand communications can be determined. Here is the agency that the business man can employ in testing, under what are equivalent to laboratory conditions, the ideas and forms of expression that seem to him best adapted to awaken a demand for his product.

Suppose the producer of a food product is planning a campaign to reach, not the consumer, but the grocers of the country. Now the whole body of dealers, large and small, handling groceries numbers something like 250,000. Let the distributor, after working out a set of ideas and forms of expression which seem to him likely to be effective in arousing the desired demand, test this material by mailing it to say 1,000 grocers. The group selected must be large enough to give typical results and it must not be so selected as to be distinct in character from the whole body of grocers. Granting these elements, the distributor can determine the number of responses from the 1,000 grocers to whom the communication was sent, and can estimate from that result the average response per thousand of communications that would have been obtained if the same ideas in the same form of expression had been conveyed to the whole body of 250,000 dealers in groceries in the country. He can then test by means of direct mailing to another group of 1,000, a varying set of ideas or varying form of expression. And so on with another modification of the selling material. Thus it will be possible to determine what ideas, in what arrangement, and in what form of expression, are most effective to arouse the desired demand.

That the plan suggested is practical is indicated by the results of such an intensive study presented in Table I. Here are shown the results of "tests" and the results of complete mailings. The tests here covered only one stratum of society, a mailing list of bankers being used. The purpose of the selling material mailed was to obtain orders for certain publications. Various forms of "copy" were tested by mailing, usually to 500 names on the list. Where the return on any test exceeded the minimum standard of twenty

BANKERS' TESTS

MINIMUM STANDARD = 20 PER M.

Material Mailed	Tests				Mailings			
	Date	No. of pieces mailed	Total orders received	No. per M.	Date	No. of pieces mailed	Total orders received	No. per M.
	1909				1909			
A ¹	3/30	500	3	6				
A ²	3/30	500	5	10				
B ¹	8/13	500	6	12				
B ²	9/13	500	3	6				
C ¹	9/15	500	4	8				
C ²	9/15	500	3	6				
D ¹	9/15	453	6	25	9/27	19,943	360	18
D ²	9/15	500	18					
E	9/16	500	7	14				
F ¹	9/21	500	24	36	11/23	16,511	589	35
F ²	9/21	500	12					
G	10/18	1,000	30	30	11/28	21,790	643	29.5
					1910			
H	11/16	500	11	22	1/24	6,554	165	24
					1/24	16,039	390	
I	1910							
	4/11	500	12	24	5/5	6,810	145	25
	4/11	500	12		5/4	12,154	336	

Note. — Where the same letter appears with different exponents under "material mailed" it indicates that on the test mailing results were kept separately for the same material mailed to two small groups.

orders per thousand communications the material was mailed to the complete list. In only one case did the complete mailing fail to show an average return per thousand communications substantially the same as that derived from the test mailing. In the case of Test D¹, mailed September 15, 1909, the return is clearly out of proportion to the results from the mailing. The same material mailed on the same date, however (Test D²), gives for a similar small group a return much closer to the results obtained from the final mailing.

When a minimum standard as low as twenty is used, and the test group numbers only 500, there is danger that the average will be disturbed as by one individual sending in several orders. The larger the test group the more exact an index will it give as to the results which will be obtained from a complete mailing.

This method of studying ideas and forms of expression in direct advertising would be important, even tho its usefulness did not extend beyond direct advertising. It would permit one to guide a widely extended direct advertising campaign by an investigation relatively inexpensive.

But the importance of the method described does not end with direct advertising. Remember that the root idea is the same whatever the agency for selling employed. Selling is accomplished by communicating to the possible purchaser ideas about the goods calculated to build up in him a demand for the goods. These ideas may be communicated through middlemen, salesmen, general advertising or direct advertising. Since the ideas are the same, whatever the agency for communication, the business man can determine in his direct selling laboratory, what ideas and in what combination are the most effective selling material. He can then carry over to selling by other agencies the results there obtained.

Suppose an extensive periodical campaign is under consideration. The distributor contemplates spending perhaps hundreds of thousands of dollars upon advertising in certain periodicals. What can the "distribution laboratory" do to determine the ideas to be conveyed and the forms of expression to be used to create the desired demand? Now the circulation of a periodical to be used may run into the hundreds of thousands or even into the millions. The business

man wishes to test the response that will result from the communication to this enormous body of subscribers of certain ideas expressed in certain forms. Not only can he work out the most effective ideas, the most effective arrangement, and the most effective forms of expression through the agency of direct mailing, but he can even test the final "copy" itself, just as it will appear in the periodical, by mailing it directly to relatively small groups. Moreover, he can test the response to it found in differing strata of society. Ideas adapted to build up a demand for a commodity in one economic and social stratum may prove ineffective when dealing with another. The importance of this method lies in the fact that most periodicals circulate within certain fairly well defined economic and social strata. The ideas and forms of expression that are most effective in one periodical hence may be relatively ineffective if used in another that reaches a different stratum.

Equally important is the application of the suggested method of study to selling through salesmen. The more progressive business men today train the salesmen in a certain basic "selling talk." That is, certain ideas, in a certain order, and in certain forms of expression, are impressed upon them as likely to build up a demand for the article on the part of possible purchasers. The basic "selling talk" is not, of course, repeated parrot-like by the salesman, but does serve as a foundation for his talks to possible buyers.

Here again the laboratory idea can be applied. The whole structure of the selling talk can be built up on the ideas, order of arrangement, and forms of expression established as the most efficient in creating demand through the medium of direct advertising. One need but appreciate the fundamental identity of the selling

function, through whatever agency exercised, to realize that the results obtained in experiments in direct advertising can be carried over to selling by salesmen.

Note, too, that the general principles upon which the "testing" method depends, apply when we seek to study the possibilities of the whole market by the intensive cultivation of one section of it. A localized selling campaign, narrow in extent, will give relatively exact data from which the possibilities of a nation-wide campaign of like character may be judged. Obviously, if our law of averages holds good, we may carry over the results obtained in one section to other sections, and hence at small cost guide a widespread campaign.

The exact data that can be obtained through such "testing" methods permit a more scientific consideration of the decreasing returns obtained if one agency is used beyond a certain point. Hence a better combination of agencies is possible, with a view to the greatest aggregate efficiency.

When a business man contemplates putting a new product on the market, a serious problem is the price at which it shall be sold. Take the case of the introduction of a product like the safety razor, at what price is the product to be sold? In such case the business man seeks to determine what price will give him the best net return, all things considered. Now the method of study developed above will permit the business man to determine by actual test the effective demand that can be built up at different price levels in different economic and social strata. Hence he can fix the price on the basis of relatively exact data, rather than on a mere guess.

Again, the laboratory method here suggested lends

itself to a determination of what elements of quality and service in a given product are deemed most essential by the consumer. The effectiveness of the ideas conveyed in building up a demand reflects the intensity of human wants as to the elements of quality and service described. The producer can sound the consumer and can better adapt his product to the consumer's felt needs.

Thus an entire selling campaign can be directed on the basis of what may be termed laboratory study. The empirical methods of the ordinary business man may be supplemented by scientific methods that have proven efficient in other fields.

The above practical suggestions have been directed primarily to the business man struggling with his immediate problems; yet it may be well to emphasize once more the social importance of the suggestions. It is not merely that a large annual waste in advertising can be eliminated. Our whole system of distribution is in chaos. And the chaotic conditions in distribution mean that matter is ill-adjusted in form and place to human wants. Only as systematic and widespread study along the lines indicated is given to the problems of distribution, can we build up an organized body of knowledge as to the facts and principles involved. And only on the basis of an organized body of knowledge about distribution can we hope to work out a more efficient organization of distribution.

And to this end the business man must coöperate with the scientist of the university. Much can be done by the trained student in his laboratory or in his study that will be of practical value in making possible a more efficient organization of distribution. The experimental psychologist can do much to work out general principles that will aid the business man

in solving definite selling problems. The difficulty has been that the laboratory worker does not have brought to his attention the specific problems of the business man.

Similarly, the universities, through investigators trained in economics, can gather and correlate data upon distribution that will be of enormous practical value. They should, through research bureaus, study such problems as the cost of distribution in the various industries at different stages. And gradually a body of organized knowledge of the actual facts of business will arise. It is by development along such lines that future improvements in the system of distribution will be made possible.

CONCLUSION

Distribution is one of the two great departments of business. Industry is concerned with the application of motion to matter to change its form and place. The change in form we term production; the change in place, distribution. The end in each case is the same: a better adjustment of matter to the wants of man.

For centuries we have been concentrating our attention on production; distribution has been, until of late, a neglected field. Hence distribution offers the most pressing problems of the day.

An attempt has here been made to outline, from the standpoint of the business man, the pressing problems of distribution, and to urge a scientific study, leading to a better organization. That the indicated method of approach is practical has been shown by presenting as an illustration the actual results of one such intensive study. It must be remembered, however, that this is only an example, intended to indicate the point of

view and general method of approach. It does not purport to offer a solution of the intricate problems of distribution.

The aim here is not only to lead business men to turn to their individual problems of distribution with a new point of view and with a new method of study, but also to lead economists to give to much neglected problems the benefit of trained intelligence and scientific methods.

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TUDOR "BOOKS OF RATES": A CHAPTER IN THE HISTORY OF THE ENGLISH CUSTOMS

SUMMARY

Dates of Books of Rates prior to 1558, that usually accepted as the first, 766. — Metropolitan rates (1507-36) precede the national valuations, 768. — Increase of valuations in 1558 and 1610, 769. — The Books contain valuations, not specific duties, except in the case of cloth, 770. — Other contents, 771. — The chief motives for the issue of the earlier Books were the desire for national uniformity and the need for reform of customs frauds, 772. — For the later books not the loss of Calais revenue but the necessity of adjustment to price changes and the increase of indirect taxation, 773.

FROM the sixteenth century to the time of the younger Pitt, the history of the customs revenue of England is closely associated with the successive Books of Rates. But despite the interest of these Books there is little reliable information concerning their origin. The following study, based on the sources, aims to determine the dates of the earlier Books, the nature of their contents, and the reasons for their issue.

The Book of Rates of 1583 explicitly states that the rates, or official valuations for customs purposes, were issued by Queen Mary in the first year of her reign,¹ and the Book of 1604 implies the same.² To the authors of these two Books, as to Gilbert,³ no earlier Rates than Mary's were known. Dowell, writing in 1888, assumes that Mary's were the first; issued,

¹ Bodleian Library, Douce C 70.

² R. O., K. R. Customs, 173/3.

³ Sir Geoffrey Gilbert, *A Treatise on the Court of Exchequer*, p. 208 (1758).

however, not in the first but in the last year of her reign.¹ This date, 1558, has been generally accepted.²

There is good evidence, however, that Mary was not the first sovereign to issue a Book of Rates. And in spite of Gilbert's view,³ it seems clear that the earliest general Book listing fixed valuations could not have been issued before 1509-10, since the poundage grant of Henry VIII kept the old clause that the merchant's declaration on oath of the value of his goods was to be accepted.⁴ The corresponding poundage grant of Mary omits this clause,⁵ as does that of Edward VI, inserting the significant phrases, "and so after the rates."⁶ Watts, in his *Bibliotheca Britannica*, refers to a Book of Rates of 1550,⁷ no copy of which, however, have I found. But there is in the Bodleian Library a Book of Rates clearly dated 1545, and this is a reissue of an earlier Book.⁸ At the Record Office, the original order for the issue of the first general Book of Rates is dated 1536.⁹ The wording of the general orders accompanying the Book indicates that

¹ A History of Taxation and Taxes in England, I, p. 179: "The old system of rating merchandises for the poundage, upon the value as sworn by the merchant, was superseded by a fixed valuation."

² Cunningham, Growth of English Industry and Commerce (4th ed.), vol. i, p. 549. Atton and Holland, The King's Customs (1908), p. 60.

³ "The Book of Rates seems to be as ancient as the thirty-first of Ed. I for thereby the Merchants agreed to be charged with the Pound Rate according to Value and such a Pound Rate could hardly be well and equally ascert without a Book of Rates; since, without such a Book, the Customs would be liable either to the Oath of the Merchant, or the Oppression of the Officer." Treatise, pp. 223, 224.

⁴ 1 Henry VIII, c. 20. The exception to this rule is considered below.

⁵ 1 Mary, St. 2, c. 18.

⁶ 1 Ed. VI, c. 13.

⁷ "The Rates of the Custom-House, both inward and outward, newly corrected. London, 1550, 8vo," printed by Nicholas Hyll.

⁸ The title of this reads: "The rates of the custome house bothe inward and outward, the difference of measures and weyghts and other commodities very necessarye for all merchantes to knowe newly correctyd and imprinted. An. MDXLV." Printed by Rich. Kele.

⁹ R. O., St. P., Henry VIII, vol. 113, fols. 129-140.

this was the first national Book of Rates ever made in England; "None of the Raats of merchandisis in no port within the Reme doth agre one with another at this day."

On the other hand, in the year 1532, there was a petition of foreign merchants concerning official valuation, which elicited the reply that the system had been in vogue over 20 years,¹ in other words, previous to 1512. Another diplomatic document of an earlier date, 1507, implies the existence of such a system.² There is also a long paper roll of date 1532,³ giving the official valuations of goods made in 1507. And the report of the royal commission of 1553 refers to the Book of Rates of the same year, 1507.⁴

The apparent conflict of statements and facts may be explained by the hypothesis that this list of rates was for one port only, not general. The port was probably London, for in the drawing up of the Rates London customs officials were the only officials consulted along with the Merchants Adventurers of London, and the list of rated commodities resembles London's imports, as shown in the customs accounts, more than those of any other port.⁵ Furthermore, the evidence

¹ R. O., St. P., Henry VIII, vol. 69, fol. 255b. Schans, *Englische Handelspolitik* II, p. 267. The Rates were likewise the subject of foreign negotiations in 1566 (Br. M., Galba, C II, fol. 297). Mary had considered the possibility of foreign objection before issuing her Rates (Br. M., Titus, B IV, fol. 129).

² Br. M., Harl., 288, fol. 19; Schans, II, sec. 115.

³ Br. M., Add. Ch., 16577, inaccurately catalogued as "Rate of prices of wares for custom due from Merchant Adventurers, 1507, 1532." (Charters and Rolls, Index Locorum, 400.) The preface of this document reads: "A Rate made of the prysys of allmaner off warys by the kyngs counsell and by the advyce [of the] surveyor & countrawlers & costemers off the porte of london and the merchants adventureres of the same with other the xv dayes of July in the xxii yere of the Rayne of ouer Sovereigne lorde Kyng Hary the VIIth the same to induer & to contynew forever duryng the kyngs pleasure."

⁴ Br. M., Add., 30198, fols. 43 ff.

⁵ Schans, tho with little evidence before him, concluded that there was "in all probability for some wares a new rating" under Henry VII, and that this remained "quite unaltered" under Henry VIII. His statement has been ignored by English writers.

from the customs ledgers in the years following 1507 indicates that the London valuations had not been established in the other ports, for their rates differed both from London and each other.¹ We may distinguish, therefore, a period of metropolitan official valuation (1507-1536), preceding that of national valuation when the London rates were made general for the Kingdom, and printed in book form.

When the valuations are compared it is seen that the Tudor Books of Rates fall into two groups. Of the Books issued in 1507, 1532, 1536, 1545, and 1550, the two of 1532 and 1545 (now accessible, one at the British Museum and the other at the Bodleian Library) show that the rates continued unchanged when the London official valuations were made national in 1536. The second group of Books, beginning in 1558,² and continuing in 1583, 1586, and 1590, raise the valuations by approximately 75 per cent on the average and keep them without change to the end of Elizabeth's reign. Walsingham had apparently contemplated a reform of the rates but Elizabeth postponed this step "untill tyme of more peacible trade."³ The next alteration of valuations was made in the Books of Rates of 1604⁴ and 1610.⁵ When compared with the official prices of 1558, those of 1610 show an average increase of about 100 per cent.

As is indicated by this statement in regard to the

¹ See, for example, the accounts of Sandwich and Lynn. R. O., K. R. Customs, 130/1 (Sandwich, 4-5 Henry VIII); *ibid.*, 95/5 (Lynn, 9-10 Henry VIII); *ibid.*, 130-134 (Sandwich, 11-12 Henry VIII); *ibid.*, 130-137 (Sandwich, 23-24 Henry VIII).

² Br. M., Add., 25097 (wrongly designated as "Table of Customs Duties, temp. Henry VIII"). There are references to an issue of a Book of Rates, 28 May, 4 and 5 Philip and Mary (1558) in *Lan.* 3, no. 70.

³ Br. M., Titus, B IV, fols. 303, 304.

⁴ R. O., K. R. Customs, 173/3.

⁵ London Customs House. The book is labelled with the date 1611.

changes of prices of commodities listed in the official valuations of the Books of Rates, the Tudor issues of the Books were concerned primarily with the values at which dutiable goods were to be rated, not, as in the nineteenth century,¹ with the specific duties. One exception should be made, in the case of the specific duties on exported cloth, which had been levied by prerogative of the Crown since 1302-03. In 1558 the custom and subsidy on exported cloth were amalgamated and this duty was greatly increased. But while this was the only instance of an avowed specific duty, the system of official valuations on other exports and on imports in effect converted the older *ad valorem* duties to a specific basis. For example, wax exported by denizens had been subject to a duty of 12*d.* per £, or a 5 per cent *ad valorem* duty, reckoning the value at the time and place of exportation. Henceforth, according to the earliest Book of Rates, a hundred pounds of wax were to be valued at 40*s.*, making the duty equivalent to a specific rate of 2*s.* per hundred pounds.²

The first Book of Rates did not include all articles subject to an *ad valorem* duty. The scope was widened in later issues. Late in Elizabeth's reign, eighteen dutiable articles were outside the Book of Rates,³ and in 1604, some goods, such as diamonds and other jewels, were declared unsuitable for such valuation.⁴ In 1685, when goods were not rated, the merchant was called upon to take the "Oath *ad valorem*,"⁵ as indeed

¹ This was the case with The Customs' Book of Rates published in 1842.

² The only early Book of Rates, hitherto at all well known, that of 1660 (Statutes, 12 Car. II, c. 4), unlike the Tudor Books, did not make all its valuations wholly independent of the fluctuating prices of the moment.

³ R. O., K. R. Customs, 196/7.

⁴ *Ibid.*, 173/3.

⁵ MS. "Book of Instruction, Stockton, 1675-1714," in Stockton Customs House.

was the case in 1787, if there were any goods not included among the specific rates.¹

It is necessary to differentiate the history of the valuation of articles of export and import from the history of the Book of Rates. Long before any Book was issued, a customary rating had been developed, as is seen in the case of cloth, the most important single article of export in the sixteenth century. Even in the fourteenth and fifteenth centuries, the short white cloth, the cloth of assize, was regularly valued at 40s.² And this rate held till 1558,³ when the specific cloth dues supplanted the earlier duties. Cloth was probably an extreme case, but it nevertheless illustrates the general tendency toward a nominal valuation, below the market price.

An interesting feature of the cloth duties was the equating of the numerous varieties of cloth to the standard white cloth. Thus a piece of Bridgewater paid custom as half a short white cloth, or a Tavistock as one sixth. This had been the practice at an earlier date,⁴ and it was apparently made general in 1536.⁵

In addition to the official valuations of a large number of articles of foreign trade and the specific cloth duties, the Books of Rates contained other matters,

¹ 27 George III, c. 12, § 17.

² R. O., K. R. Customs, 59/8 (5 Ric. II).

³ Cf. Br. M., Lansd., 3, no. 70; Galba, C I, fol. 223 (about 1558); Bodleian, Douce C 70.

Wool also had enjoyed (at London) a customary rating or valuation of 13s. 4d. per bale. This, at any rate, was the assertion in 1507 of the Breton merchants who were objecting to new and strange rates. Br. M., Harl., 288, fol. 19.

⁴ R. O., K. R. Customs, 96/37 (8 Nov., 1456). A Hanse merchant exported from Lynn "8 straights making 2 cloths custom 2s." See also *ibid.*, 53/17 (31-22 Henry VII).

⁵ R. O., St. P., Henry VIII, vol. 112, fols. 129-140: "Concernyng the makyng of wollen clothe and how many of every sort shalbe alowyd for a cloth." A fuller statement is to be found in the Book of Rates of 1583 (Bodleian, Douce C 70). See also K. R. Customs, 173/3 (1604).

such as tables of weights and measures and other information useful to merchants engaged in the foreign trade as well as to the customs officials. This additional matter became in the Stuart period a more important element. Some of the Books, indeed, were largely given over to general instructions, to commercial statutes,¹ and orders at the time in force.

Various motives may be assigned for the issue of the Books of Rates. The preamble to the Rates of 1507 states no reason for the innovation. The orders of 1536 suggest that price changes may have had influence, since it is asserted that prices were higher "by the one half and more than they were in times past." But a comparison of the valuations of 1536 with those of 1507 reflects no such rise, and there seems to be no considerable difference between the first official valuations of 1507 and the earlier customary valuations.² It is probable that the earlier Books of Rates represent, in the main, the desire of the Government for order and national uniformity in the collection of the customs. Coupled with this was, perhaps, the effort to check fraud and collusion between the customs officials and the merchants, so long a subject of complaint.³

¹ The first bounty act on corn, for instance, appeared in the Book of Rates of 1675. See my article in this Journal, vol. xxiv, p. 419.

² See R. O., K. R. Customs, 79/12.

³ See, for example, the complaint, under Henry VIII, of the "Nedligens & Ignorans of many the kings officers," and "the gret suttyll & crafty yuventions as well of the merchants of this Realme as of merchaunt strangers." (R. O., St. P., Henry VIII, vol. 113, fols. 129 ff.) "Item the stelyng of Custome of Silkes by certayne straungers yn excedyng mesure wherfore ther must be devises established for the king to be answered of the true custome." (Br. M., Titus, B I, 148b. (1535).)

Cunningham emphasises the frauds on the customs revenue in his account of Mary's Book of Rates (Growth, I, 549). Of interest in this connection is the advice to English merchants in an Elizabethan tract on trade, written probably by a West Country merchant: "you must take hede that you gree with the customers for your custome before you land your wares for they will gree with you for two in the hundert otherwyse they will make you paye VIII or X in the hondert." (R. O., St. P., Dom., Eliz., vol. 225, no. 56 (1565 ?).)

The second group of the Books of Rates, beginning with that of 1558, has been explained by Gilbert and Dowell as due to the loss of the Calais duties and the necessity of obtaining compensation by an increase in revenue from the port duties in England.¹ It is true that Queen Mary's Book of Rates was probably issued a few months after the fall of Calais, but that the new rates were to compensate any loss of revenue from the Calais customs is highly unlikely. There was no additional revenue from duties levied at Calais. Staple commodities paid a custom and subsidy when exported from England to Calais and none when exported from Calais,² and the local tolls and minor charges at Calais were insufficient to meet the expenses of maintaining this military outpost. When the place fell there was no fiscal loss, but on the contrary a relief from the constant drain of Calais deficits.³ It is improbable, furthermore, that the Staplers, in their petition of 1560,⁴ were correct in holding that the reduction in wool exports was due to the termination of the staple at Calais. The wool trade had, in fact, commenced to decline before Calais was lost to England since it was being displaced by the growing manufacture and exportation of domestic cloth, and this change was recognized in the readjustment of rates in 1558.

It is not necessary to have recourse to such a *post hoc propter hoc* argument as the fall of Calais to explain the new departure in customs policy marked by Mary's Book of Rates. The documents themselves indicate

¹ Gilbert, *Treatise*, 225; Dowell, I, 179. Cf. Cunningham, *Growth*, I, 550.

² R. O., K. R. Customs, 106/8; L. T. R., *Foreign Accts.*, 1 Ric. III, no. 17; Br. M., Add., 30198, fol. 38.

³ For the year 4-5 Ed. VI, the ordinary expenses of Calais were £9673, 4s., 1d., the income from all sources £4596, 12s., 7½d., the deficit £5286, 11s., 6½d. (Br. M., Add., 30198, fols. 38, 39. Cf. also A. Jenckes, *The Staple in England*, 19.)

⁴ R. O., St. P., Dom. Elis., vol. 15, no. 61.

the causes for the change. The arrangement of the previous Books was bad,¹ and they omitted some articles of trade which in a later period were included, such as corn of all kinds,² haberdashery, and upholstery wares.³ The great rise in prices necessitated, furthermore, an increase in valuations.⁴ But most urgent was the need of raising a greater revenue from indirect taxation,⁵ when Governmental expenditure was growing and any great addition to direct taxation would have been difficult and dangerous. The Book of Rates of 1558 was issued at a crisis in financial affairs, and Mary's Council introduced a new stage in the history of the customs revenue when they established the difference between valuations "by agreement" and

¹ See the prefaces to the editions of 1583 and 1590 (Bodleian, Douce C 70; and Br. M., C. 40 b 29).

² See the books of 1545, 1558, and 1583.

³ Br. M., Add., 30196, fol. 43 (6 Ed. VI).

⁴ This is emphatically stated by the royal commissioners of 6 Ed. VI, who give a list of valuations together with their market price, as follows:—

Articles	Book of Rates Valuation.			Market Price.		
Canvas of Normandy, per C.	*£1	10s.	0d.	£3	0s.	0d.
Cloth, Holland, per piece	0	12	0	1	6	0
Fustian, per bale	*10	0	0	25	0	0
Iron, per ton	*2	0	0	26	0	0
Madder, per bale	*2	10	0	6	0	0
Oil, per ton	*4	0	0	30	0	0
Sarcenet of Florence	*3	0	0	8	0	0 or
				9	0	0
Say, per piece	0	10	0	1	5	0
Silks, per yard	0	7	6	1	0	0
Thread, outenall, per dozen	*0	5	0	0	16	0
Velvets, out of grain, per yard	0	7	6	1	0	0
Wainescott, per C.	2	0	0	8	0	0
Worsted, Russell, the broad	0	10	0	1	10	0
Worsted, Russell, the narrow	0	6	8	1	0	0
Total	27	18	8	113	17	0

* The valuations of 1507.

⁵ Br. M., Add., 30196, fol. 43 (6 Ed. VI). It is "meet" to take measures for "the profit of this Custom" . . . additional returns from new rates "were very necessary."

valuations "altered" according to the pleasure or necessities of the Crown.¹ It was the importance of the change thus made which at a later date probably led even high officials to regard this as the first Book of Rates.

The Book of Rates, at first issued as a measure of official reform and national uniformity, became not only a fiscal institution, yielding a large additional revenue by an increase in the valuation of goods,² but the agency through which was later developed the policy of protection to English industries.³

N. S. B. GRAS.

¹ Br. M., Titus, B IV, fol. 129.

² The increase in revenue was £20,000 yearly (*ibid.*, fols. 303, 304).

³ The preface to the Book of Rates of 1611 is one of the most important early official statements of mercantilist policy. (London Custom House, *The Rates of Merchandises*, 8 Jac. I.)

REVIEWS

DYER AND MARTIN'S LIFE OF EDISON ¹

THIS book deserves the attention of economists, not only because it throws light on important phases of the economic history of our time, but because, being largely an autobiography, it may contribute to an understanding of the psychology of the inventor and business leader. True, the book is not from Mr. Edison's pen; but it has been written with his aid, and bears a formal statement that it is published with his consent. The authors have been intimately associated with Mr. Edison, and one of them (Mr. Dyer) is now counsel for the Edison Laboratory. The preface states that "a great deal of the narrative is given in Mr. Edison's own language, from oral or written statements made in reply to questions addressed to him."

Mr. Edison has been much more than an inventor. He has been almost through the whole of his career an organizer, manager, investor. He has taken an active part in developing the most important of his devices, such as the incandescent light in its early stages and up to its utilization on a commercial basis, the sound-reproducing instruments, the moving-picture devices, the cement plant, the unsuccessful iron-ore plant. Not all of the enterprises in which he has taken an active part rest so exclusively on his own devices as the incandescent light and the talking instruments. But in all of these his genius has been applied with the same revolutionary effect, and in all he has himself taken hold not only as inventor but as manager.

None the less, one of the first things that impress the reader is that Mr. Edison does not possess, certainly not

¹ Edison, *His Life and Inventions*. By F. L. Dyer and T. C. Martin. New York: Harper. 1910. Two vols., pp. 989. \$6.00.

in the best combination, the qualities that make the ideal organizer of industry. He has drive, the energy of a titan, an unfaltering persistence, a capacity for enlisting the enthusiasm of his followers; daring, too, and willingness to assume the risks of novel enterprises. But he is not an intuitive calculator, not an adept in financial management nor quick in financial reckoning. In his early days, when the first large lump payment for a successful device was made to him, he thought he might get for it \$3000, possibly \$5000; his breath was taken away when he was offered \$40,000. And tho he was then already in business on his own account as electrical engineer and contractor, and indeed had dabbled in undertakings of his own from boyhood, he received from this transaction his first check, and knew so little of business ways that the drawer of the check and the bank teller were able to amuse themselves by paying over to him piles of small bills which he carried home and guarded all night. The next morning the joke was carried no further; the victim was told how to deposit his check and open a bank account (I, 133). At a period considerably later he received by cable an offer of "30,000" for his interest in an invention; he accepted, but it was not until the draft arrived that he learned that he was to receive not 30,000 dollars, but 30,000 pounds sterling (I, 185). At still another time he was offered \$100,000 for an invention, and accepted; but, wishing to be assured of a settled income for a period in the future, stipulated that the sum was to be paid in instalments of \$6000 a year spread over 17 years; a mode of payment which was, of course, agreed to with alacrity by the other party. A second offer of \$100,000, for another invention, was shortly after accepted on the like stipulation, and with the same ignorance of the pecuniary worth of deferred payments (I, 180, 183). There are abundant other indications through these volumes that book-keeping and accounting were neglected by Mr. Edison and were not readily understood by him. (See, for example, I, 135.) If he prosecuted his enterprises to financial success, it was because his other qualities made that of pecuniary accuracy negligible.

On the other hand, it cannot be said that money has been indifferent to Mr. Edison, or that his energies have been applied without influence from the money-making ambition. His first patent (1869) was for a vote-recorder; its fate is interesting in more ways than one.

The purpose of this particular device was to permit a vote in the National House of Representatives to be taken in a minute or so, complete lists being furnished of all members voting on the two sides of any question. Mr. Edison, in recalling the circumstances, says: "The invention when completed was taken to Washington. I think it was exhibited before a committee that had something to do with the Capitol. The chairman of the committee, after seeing how quickly and perfectly it worked, said: 'Young man, if there is any invention on earth that we don't want down here, it is this. One of the greatest weapons in the hands of a minority to prevent bad legislation is filibustering on votes, and this instrument would prevent it.'" (Pp. 101-102.)

His biographers remark elsewhere: —

From the time of boyhood, when he first began to rub against the world, his commercial instincts were alert and predominated in almost all of the enterprises that he set in motion. This characteristic trait had grown stronger as he matured, having received, as it did, fresh impetus and strength from his one lapse in the case of his first patented invention, the vote-recorder. The lesson he then learned was to devote his inventive faculties only to things for which there was a real, genuine demand, and that would subserve the actual necessities of humanity; and it was probably a fortunate circumstance that this lesson was learned at the outset of his career as an inventor. He has never assumed to be a philosopher or "pure scientist." (P. 239.)

It is to be noted, also, that he seems to have been immensely concerned with keeping his intentions secret until he had secured the protection of the Patent Office (I, 273).

Mr. Edison's pecuniary career has been checkered. He made a fortune in connection with the incandescent light, — tho not from the patents, but from connected manufacturing enterprises (II, 661, note). He lost everything in the magnetic iron ore venture, as is noted below; and he became rich again from sundry inventions and enterprises

of later date, — cement-making, talking-machines, moving picture-machines, and so on. I quote again: —

All his life he has had a great deal to do with finance and commerce, and as one looks at the magnitude of the vast industries he has helped to create, it would not be at all unreasonable to expect him to be among the multi-millionaires. That he is not is due to the absence of certain qualities, the lack of which Edison is himself the first to admit. Those qualities may not be amiable, but great wealth is hardly ever accumulated without them. If he had not been so intent on inventing he would have made more of his great opportunities for getting rich. If this utter detachment from any love of money for its own sake has not already been illustrated in some of the incidents narrated, one or two stories are available to emphasize the point. (P. 661.)

One of the stories adduced relates to a loan requested from the City Bank in New York, and not granted. The president said to Mr. Edison, "What you want is a partner"; a remark which seems to have been taken by Mr. Edison as an intimation of a design to get an illegitimate slice of his gains. Whether or no the remark was sinister, it seems to have had its justification. There is abundant indication that he was an erratic person in business matters; and he may have needed a partner quite as much as Watt needed Boulton.

Mr. Edison's iron-ore enterprise (narrated in chapter IX) illustrates not only the ups and downs of his pecuniary career, but the spirit in which he took hold of his ventures. He conceived the idea that the vast deposits of low grade magnetic iron-ore in the Eastern region could be profitably utilized in competition with the Lake Superior ores. He bought in New Jersey a large tract of land — "a mountain of rock containing only one-fifth to one-fourth magnetic iron" — and proceeded to tear down the mountain, grind the rock to powder, and extract the iron. The venture was conducted with extraordinary energy. A village was created at the site, crushing machinery of novel type invented, a magnetic separator devised, elaborate apparatus installed for putting up the ore in briquets suitable for

transportation and smelting. Doubtless, there is no reason for discounting what is said in these pages about the inventive and organising genius shown. But a commercial failure the enterprise did prove. Possibly the explanation lies, as the biographers state, in the unexpected cheapness of the competing Lake Superior ores; and it may be that in the future the Eastern ores will again be utilized on Mr. Edison's plans. But the fact remains that in this case the inventor was his own backer, embarked his entire fortune, and lost everything.

None the less, the spirit in which this very enterprise was pushed, and the failure finally accepted, shows that money-making was not the only thing that stirred the man. He lost in the venture the fortune of a couple of millions which he had made from the electrical ventures afterwards consolidated in the General Electric Company. He was immensely interested in the technical problems of the ore plant. A conversation relating to this phase of his career is reported thus:—

We got a New York newspaper, and I called his attention to the quotation of that day on General Electric. Mr. Edison then asked: "If I had n't sold any of mine, what would it be worth to-day?" and after some figuring I replied: "Over four million dollars." When Mr. Edison is thinking seriously over a problem he is in the habit of pulling his right eyebrow, which he did now for fifteen or twenty seconds. Then his face lighted up, and he said: "Well, it's all gone, but we had a hell of a good time spending it."

On the psychological issue, the verdict on the whole seems to be, not proven. Obviously the man is veritably possessed by an instinct of workmanship or continuance; just as others are possessed by the instinct of rhythm, or of combat, or of the curiosity of science. It is clear that the love of distinction and the more material self-regarding motives have also moved him. What has been the share of the two sets of motive forces in bringing him to his achievements seems impossible to say. Doubtless he could not say himself. The psychologists are able to do no more for

us than enumerate and classify, with more or less uncertainty, the human instincts. They can assure us only that the love of wealth is no simple thing, but very complex; and that man is moved in his industrial efforts by a variety of impulses, some of them agglomerated in this composite love of wealth, some of them quite distinct from it. We are so immersed in the present individualist system that we can hardly conceive how we should act under conditions totally different. Prediction might be expected to be easier as regards those rare persons, like Mr. Edison, in whom some particular bent appears with extraordinary strength. Yet even here we cannot be sure. What sort of things would he have worked at in a collectivist society, and would his services have been greater or less? To these questions we can give no convincing answers.

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NOTES AND MEMORANDA

THE POSSIBILITY OF CERTAIN GAINS FROM PROTECTIVE DUTIES

IN his recently published *Principles of Economics*,¹ Professor Taussig develops a quasi-hypothetical case (having, however, possible relevance to the conditions of the United States) in which he contends that the disadvantages of protection may, to some extent, be offset by an increased purchasing power over foreign, as distinguished from domestic, commodities. The first influence of even a purely revenue duty, and still more of a protective duty, being, as he points out, to lessen imports, the movement of specie will be into the country. Prices and incomes rise in the country, and fall in foreign countries. Exports are checked, imports stimulated. "If the commodities exported from a country are of a sort insistentlly demanded in foreign countries; and if, on the other hand, the commodities which it imports are not such as to be consumed more largely as their prices fall, — then the change (in money income and prices) may be considerable. Eventually equilibrium is re-established; exports diminish and imports increase until payments again balance. When this stage is finally reached, the country which imposed the duties will have higher incomes and higher prices. The higher incomes will be no benefit so far as domestic purchases go, since within the country prices have risen in the same proportion. But they will be of advantage in the purchase of things imported."

The result is, he thinks, that there will be a balance of gain and loss. The consumers lose as purchasers of the protected articles, but they gain as purchasers of things

¹ Book IV, chap. xxxvii, sec. 1.

that continue to be imported. It is true that of these some are subject to the protective duty; but the consumers gain if the price is not raised by the full extent of the duty, and, even if it is, there is "a full recompense" in the revenue received by the public treasury, and by the consumer being relieved (presumably) from other taxes. The consumers gain, also, on all non-dutiable foreign imports which still continue to come in.

This reasoning Professor Taussig proceeds to apply to the case of the United States, as to which he comes to the final conclusion that it is impossible to calculate "how far the gain from this source has served to offset the loss from the domestic commodities produced and sold at higher cost." "It is a gain," he rightly says, "little reckoned with in the popular controversy."

It may be added, that it is a gain — so far as the present writer is aware — not much reckoned with, even by economists, in the case of *protective* duties, tho a similar doctrine, as will afterwards be pointed out, was held by Mill to be applicable to duties that were imposed for revenue purposes and had no protective effect. The present writer ventures, with great diffidence, to submit, for reasons now about to be set forth, that as applied to high protective duties which are really effective the whole argument is unsound.

It is not clear, in the first place, how the inflow of specie mentioned in the text can result in a *permanent* rise of incomes and prices, except under conditions which would deprive the rise of real significance. It will, of course, cause a temporary rise, while the balance of imports and exports is being adjusted. After the so-called equilibrium has been reached, the advantage of the higher incomes "in the purchase of things imported" can only be realized at the expense of an increased outflow of specie which will tend to reduce prices and incomes in the protected country. If this increased outflow is precluded by the hypothetical conditions of international demand, then all that has happened is that there has been a redistribution of the enlarged income, by which the consumer gets the same (or, more

probably, a less) amount of domestic and foreign commodities as before, paying considerably more for the former, and somewhat less for the latter.¹ It is not evident in what his advantage consists. It is no benefit that foreign commodities are cheaper if he cannot purchase more of them than formerly except on the old terms.

The argument may, perhaps, be more readily understood if it is pointed out that the word "equilibrium" is ambiguous. It may mean either an equilibrium of quantities, or of rates. In the former case, a stationary condition of trade is implied; x imports would exchange for y exports, neither more nor less. In the latter case imports would exchange for exports *at the rate of* x imports for y exports, which might be satisfied by $2x$ for $2y$ or $3x$ for $3y$ and so on. The latter is the sense which, it would seem at first sight, was the one intended. It is against this view that the foregoing criticism is aimed. The contention is that the possibility of exchanging x imports for y exports depends on a certain distribution of specie, and that any attempt to increase the volume of the trade and the advantage in the same ratio would fail because it would disturb this distribution. A nation, for instance, which, under a system of free exchange, had an import of 1,000,000 tons and an export of the same amount, might after adopting a protective tariff get 800,000 tons of imports for 600,000 tons of exports. But it would not be possible for the trade to expand in this ratio so that 1,600,000 tons, say, were obtained for 1,200,000 or even the original 1,000,000 tons of imports for 750,000 tons of exports.

The foregoing arguments apply to all foreign commodities, taxed and untaxed. In regard to imported commodities subject to the protective duty, if the price has been raised to the full extent of the duty, the advantage vanishes altogether. The suggestion that the consumer gets a "full recompense" in the relief from other taxation overlooks

¹ "Considerably more," because the fund available for domestic purchases created by the inflow of specie is still further augmented by the savings in the reduced price of the foreign goods.

the fact that the duties are levied for purposes of protection, and would not have been imposed had a protective policy not been decided upon. The case of a purely revenue tax is, in this connection, unimportant.

If, on the other hand, the rise in price is not to the full extent of the duty, it is because equilibrium has been established at a point short of this result. The supposed advantage has not *pro tanto* been availed of. A further demand for imported articles, if the hypothetical conditions of reciprocal demand would permit of it, could only result in tending to raise their price to the full level of the duty, when the advantage of the higher incomes in the purchase of foreign commodities will be no greater than in the purchase of domestic.

So far the reasoning has proceeded strictly on the lines laid down by Professor Taussig. There is, however, another and simpler way of approaching the subject which has the advantage of disentangling the controversy from intricate questions as to flow of specie and rise of prices. That is, to regard all such matters as mere mechanism and to look only to the broad fact that foreign trade is in its essence a case of barter, the profits of which arise from the extra product created by international division of labor. Regarded in this light Professor Taussig's obvious meaning is that in the adjustment of the equilibrium the lion's share of the advantage derived from mutual trade will fall to the protected country; it will get a larger share in the extra product created by the international division of labor, its imports will be obtained with a smaller volume of exports, foreign and domestic prices being automatically adjusted at the equilibrium point so that this result is secured. Even, however, under a regime of free exchange the assumed conditions secure the lion's share of the extra product to the country having the least insistent demand for imports, and for whose exports there is the most urgent demand abroad. It does not, necessarily, or indeed probably, follow, that protection will increase this advantage. It may increase *the share* in the extra product falling to the protected country,

but it will certainly diminish *the total to be divided*. If, for example, the increased annual product derivable from international trade under conditions of free exchange were some 50,000 tons, say, of iron or steel, and under protection only 30,000, then if the protected country got $\frac{1}{3}$ ths of the amount in the former case, and $\frac{1}{4}$ ths in the latter, it would make a less gain by 6,000 tons, and the loss would be a continuing one as long as the conditions lasted.

Even if it secured the whole extra product, and not merely $\frac{1}{3}$ ths of it, the protected country would make no profit, and would only just avoid a positive loss. The more effective the protection, the less will be the extra product, and the smaller will be the possible gains to be made by an increased share of it. A real gain is in general only conceivable where the product suffers a comparatively trifling diminution, i. e., the duties imposed do not protect, or protect only to a slight extent. They are then hardly distinguishable from revenue duties, and we come back substantially to the position taken up by Mill (*Principles*, Book V, chap. iv, § 6). Mill, it will be remembered, draws a sharp distinction in this respect between revenue and protective duties, holding that the former may give rise to a gain in the conditions of international exchange, which will not be the case if the duties are of a protective character. This view would seem to be substantially correct, tho somewhat too narrowly expressed. Duties only slightly protective, which resulted in but an insignificant diminution of the product, would give practically the same result as duties for revenue only. The same effect might also be produced even with a great diminution of the product if it were accompanied by a very large increase in the proportion in which it was shared (say in the example given above from $\frac{1}{3}$ th to $\frac{1}{4}$ ths), but this is not likely to occur, save in very exceptional circumstances; the proportion secured by the protected country being by hypothesis great, even in the absence of protection.

Put in a nutshell, the point is that to speak of "offsetting" the losses of protection by "the gain" in the terms of international exchange implies a confusion between two

entirely different things (1) a loss in total amount or volume of produce, (2) a gain in the ratio in which that amount is divided. You cannot set off, *e. g.*, a gain of " $\frac{1}{5}$ th" against a loss of "4 tons" until you have reduced the terms to a common denominator by answering the question " $\frac{1}{5}$ th of what"? The answer is, in the case of international trade, $\frac{1}{5}$ th of the total product or, more precisely, of the extra product resulting from the international division of labor. If the total is *constant* or nearly constant (which is the case of a revenue duty or of a duty but slightly protective), the $\frac{1}{5}$ th is a real gain. If the total *diminishes greatly* (the case of high protection when really effective), the nominal gain of $\frac{1}{5}$ th is in reality a loss. Two-fifths of ten oranges is four oranges, three-fifths of five oranges is three oranges; a nominal gain of one-fifth, a real loss of one orange.

The application of the foregoing reasoning to the case of the United States is obvious. If the principal condition under which protective duties can favorably influence the terms of international exchange is that they should be very moderate in amount, there would appear to be no possibility of any gain having resulted to the States from this source — provided of course that the protection has been effective. If for any reason it failed to protect, other considerations would arise.

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WAGES AND ABILITY

THE subject of wages and ability has been a fertile one for speculation since the economists of the marginal productivity school have advanced the proposition that wage-earners tend to get what they produce. This theory has as a natural corollary that the more efficient will get more than the less efficient: the man of greater ability will receive a greater reward than the man with less ability. But few

attempts have been made to verify the proposition by any but theoretical methods.

As a radical departure from a theoretical to a statistical demonstration, Professor H. L. Moore, in his volume dealing with the laws of wages from a statistical standpoint,¹ devotes a chapter to the problem: "Are wages paid according to ability?" The question is important from the point of view of the application of statistical methods to economic doctrines, and also with reference to its bearing on the contentions of the socialists that labor is exploited. It is therefore of the greatest moment to make certain that any attempted proof of an affirmative answer is thoro and cogent.

Professor Moore's proof is as follows. He accepts the generalization of Galton and Pearson that ability is distributed in the general population according to the normal or probability curve. Then, applying the limitation of the wage-theory that different non-competing groups are to be considered, and assuming for the sake of simplicity that there are but two, — the skilled and the unskilled, — he divides the wage-earners equally between the two groups, the first fifty per cent unskilled and the second fifty per cent skilled. It will readily be seen that the wages might be paid according to ability within each group without fixing in any way the respective shares of the total wage dividend that each group would receive. But he finds that the first fifty per cent of the wage-earners in France get 39.819% of the total wage dividend; and Professor Moore sets himself the following problem: if wages are paid according to ability in each group with the lower group receiving 39% of the total wages, what kind of a curve of distribution of wages will result, and will this ability-wage curve be at all comparable to the actual curve of distribution according to the French statistics?

Professor Moore first simplifies the problem from the mathematical standpoint by taking a "standard population" of 100, so chosen that the distribution of wages in this stand-

¹ *Laws of Wages, an Essay in Statistical Economics.* New York, 1911.

ard population will correspond in every way with the distribution in a larger population; the advantage being that he can impose on this standard population any conditions he chooses and have a common basis of numbers on which to compare the resulting curves. Then he divides this "standard population" into two equal parts, one, unskilled, earning 39% of the total wage with a minimum wage of 2.36 francs, and the other, skilled, earning 61% of the total, with a maximum wage of 10.18 francs.

According to the differential theory of wages, wages in each group will consist of two parts: first, the minimum wage of the group, and second, a differential based on the difference of ability of each man over the lowest man in the group. In the given standard population, each man in the lower group earns the 2.36 francs minimum plus an amount which corresponds to his part of the remainder of the 39% due to his position on the scale of ability. Each man in the upper group will likewise receive the minimum wage in the group plus a differential corresponding to his advantage in ability over the lowest man in his group; but the minimum wage in this group just exceeds the maximum wage in the first group; that is, is equal to the wage of the fifty-first man. How is the amount of the differential determined? Here Galton's generalization comes in. It is determined by the difference of ability of each man over the least able in the group, which is easily found by mathematical processes from the equation of the probability curve according to which ability is distributed.

By these processes Professor Moore finds the distribution of wages on the basis of ability; that is, he finds what the curve of the distribution of wages would be if wages were paid according to ability. This curve he compares with the actual distribution of wages in France, and finds that the two curves agree closely, and he therefore concludes that wages in this case *are* distributed on the basis of ability. "The fact that the smooth curve of the actual data is practically congruent with the smooth curve of the standard population shows that in this case a doctrine of pure economics is statistically verified."

Is this conclusion valid? Does the fact that the two curves are "congruent" show "that the doctrine of pure economics is statistically verified"? To put a simpler case. Suppose that there were but one group, and it was found that the mathematical computation of the wages that would be paid on the basis of ability and the actual distribution of wages gave curves that coincided, — would the fact of the congruence of the curves prove the point at issue? The computation according to the theory that ability is distributed according to the probability curve will in this case give simply a probability curve. And it is a proved fact, which Professor Moore himself cites, that height, weight, strength, lung capacity, any characteristic almost of the human species, — all are distributed according to the probability curve. These curves are as congruent with the curve of actual wages as is the curve of ability! With the same reasoning as that which Professor Moore uses, wages are paid according to height, weight, strength, and what-you-will, if the congruence of the curves has any significance. The mere fact of congruence proves nothing. The only way to prove that there is a correlation between ability and high wages, is to show that low ability corresponds with low wages, and high ability, with high wages. The fact that ability, strength, and wages have coincident curves of distribution proves nothing as to their connection.

Professor Moore's analysis of the problem is not quite so simple. Does the fact that he has divided his population into two groups and then computed his curve make any real difference with the validity of his reasoning as to the correlation proved by the congruence of the curves? Clearly not. It does make a difference with the character of the theoretical curve, for he has incorporated into it the actual distribution of wages as far as the total received by each half is concerned; and his argument seems to receive an appearance of validity from the fact that it is obvious that the unskilled or lower half are really less able than the upper half, and from the fact that the lower half do not get on the average as much as the skilled men. But the fact

that the unskilled receive less than the skilled is in the original statistics of the French Report, and can be deduced without any recourse to higher mathematics. Professor Moore's curves prove nothing. Since the fact that the unskilled receive less than the skilled is incorporated into the theoretical curve, it does illustrate that fact; but the congruence of the theoretical and the actual curves of wages proves nothing. No data are given that can be applied to the fundamental proposition whether the lower wages in the lower group are correlated or are not correlated with a lower grade of ability.

Professor Moore finds the minimum in each group, and adds to it a differential proportioned to the difference in ability of each man over the man receiving the lowest wage; that is, "a wage on the basis of ability." What he really obtains is a little different. When he determines the differential which each man in the group will receive — "the differential according to ability" — what he really finds is the differential according to the probability curve according to which ability is distributed. But this is actually the differential which each man would receive over the minimum if it were a simple case of chance, — a wage on the basis of any "chance" distribution. It is true that there is no other way that the differential due to ability can be measured; yet this differential is a measure not merely of difference of ability. The same curve would be used to determine a differential if the hypothesis of distribution of wages on the basis of strength, height, or chance itself (all of which are distributed according to the same normal curve) were the hypothesis to be tested.

Professor Moore's syllogism is really as follows: the actual curve of wage distribution is found to agree with a theoretical curve of wage distribution, when this distribution is made according to the probability curve, *i. e.*, chance. But ability is distributed according to the probability curve. Therefore, so runs Professor Moore's conclusion, wages are distributed according to ability. There is evidently a logical slip in the proof.

While the chapter on wages and ability is thus open to serious criticism, it would, perhaps, be unfair to criticize it without speaking of the high merit of the remainder of the work. Professor Moore has drawn interesting and valid conclusions in the other chapters of the book, — correlations which support theoretical deductions hitherto without statistical foundation. Professor Moore has really made a new departure in economic science. He has introduced a movement that will ultimately demand a verification of theory by actual data, which in turn will be a first step toward the concrete application of economic laws to practical ends, based as they will be not on theory alone, but on fact.

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THE PENNSYLVANIA STATE RAILROAD COMMISSION

In the several states of the United States "between 1902 and 1908 over 800 distinct provisions were enacted to regulate purely state traffic, eight new commissions were created, and seven of the thirty-one already in existence were re-organized";¹ leaving only seven states in the union without a public service commission of some kind. One of the eight newly formed commissions was in Pennsylvania, where Governor Stuart signed the creating act on May 31, 1907. Pennsylvanians had felt for some time that the railroads were abusing their powers, and the legislature had attempted a few years before to lessen railroad charges by imposing a flat two-cent passenger rate. When this law was declared unconstitutional, different means of check were found to be necessary. The legislature went into session pledged to create a commission, and the act of 1907 was the result.

¹ G. G. Huebner, in *Annals American Academy*, July, 1908, p. 138.

Altho almost the entire trend of recent legislation had been to increase and strengthen commission power, Pennsylvania legislators went back to the old Massachusetts form and established a commission with powers merely of investigation and recommendation. It is composed of three commissioners appointed by the governor with the senate's consent, to continue in office for five years and to receive salaries of \$8000 a year. These appoint, to serve at their pleasure, an attorney, a secretary, a marshal, and all experts needed for thoro investigation. They are granted wide scope, their power extending over all corporations transporting freight or passengers by rail or water, over pipe line companies, express, telephone, and telegraph companies. They may inquire into the business and management of common carriers and investigate all matters incident to the performance of their public duties and their compliance with charters and state laws. Any aggrieved person or corporation may file a complaint with the commission, whose business it is to investigate, hold a formal hearing if necessary, and award its decision in the form of a recommendation. Its power of recommendation is extended to rates as well as to management and accommodation. Severe penalties are provided for refusal to show books or to testify. The commission may also make investigation of cases at its own volition, and is required to do so in case of accidents, to determine the cause and to recommend measures preventing a repetition.

As far as powers of investigation and advice go, the commission is all that could be desired. If, however, its recommendation is disobeyed or disregarded, its duty is merely to certify the fact to the Attorney General and Secretary of Internal Affairs, who take action as they see fit. The expectation is, of course, the same as had been entertained for the Massachusetts, Rhode Island, and Connecticut Commissions: public opinion is to force the carriers to submission.

When the Pennsylvania Commission organized in January, 1908, the governor's appointees were Nathaniel Ewing, chairman, and Charles Mann and John Y. Boyd, associates.

The places of the last two have since been taken by Milton J. Brecht and S. W. Pennypacker. Mr. Ewing has been a member of the bar for forty-one years and was made President of the Pennsylvania Bar Association in 1903. He has been counsel for various corporations, among them the Pennsylvania Railroad Company, and has been a Director of the West Virginia and Pennsylvania Telegraph and Telephone Company. Thus he has obtained his knowledge of common carriers at first hand. Milton Brecht was formerly superintendent of schools in Lancaster County. Mr. Pennypacker is ex-governor of the state.

The new commissioners discovered 1440 corporations under their jurisdiction and doing active work as public service corporations. They began at once to receive complaints dealing with sanitary conditions, overcharges, poor station facilities, insufficient service, and discrimination. A great number of these cases were promptly settled by correspondence, and of the others demanding more formal hearings and recommendations all have been settled except two, in which the recommendations have been disobeyed by the carriers.

Among the greater things that they have investigated and reported upon are forest fires and their prevention; the canal abandonment in Pennsylvania and its results; telephone and telegraph rates; the Pittsburg and Philadelphia electric service (resulting in both cases in marked improvement according to recommendations); and regulations of boiler construction and inspection (minimizing railroad accidents resulting from defective boilers). In each of these cases the investigation has been thoro, the recommendations specific, minute, and scientific. Experts were engaged and given full opportunity. The common carriers involved also gave their assistance in each instance and in most cases gladly agreed to the recommended improvements.

All parties are beginning to acknowledge the need and justice of commission regulation. The question is no longer whether a state shall have a commission; it has become a question of whether advisory or mandatory. Is the advisory

commission the best form for Pennsylvania? The Massachusetts Railroad Commission, still mainly advisory, has been generally conceded to be effective. Founded in 1869, it has been in active service for more than forty years and has during that entire time had hardly a serious clash with the railway management. Public opinion has accomplished there all that has been expected of it. But are the conditions of the two states similar? I believe they are not. To begin with, Massachusetts is a smaller state, and the problems are less large than in a state of Pennsylvania's size. The Massachusetts Commission has grown up with the railroads, has been able to see the problems as they have arisen, and the railroads have learned to respect its decisions. The Pennsylvania Commission was formed after the public service corporations had become firmly entrenched, and after the problems had become infinitely complex. The public served in Massachusetts consists in a great measure of stockholders also, and their interests on one side balance those on the other.

The conditions in Pennsylvania are very different. When the bill creating the commission was under discussion in the legislature there were requests for definite restriction of railway action, which were answered by the statement that these laws could better be passed later at the suggestion of the commission. When its first annual report was presented to the governor, the commission asked that the following laws be passed: (1) a law permitting a private railroad to join a public one, to obviate the necessity of incorporating private lines; (2) a law punishing trespassers on the right of way of common carriers; (3) a law compelling carriers to notify the commission of any intention of increasing their capitalization, and providing that such an increase without this notification or against the commission's advice be invalid; (4) a law allowing the commission to recommend safety appliances to be used at all grade crossings of public highways over common carriers. Bills have been drawn up in due form by the commissioner's attorney and the plea for their passage has been repeated in each annual report. They still remain unpassed.

Two recommendations have been disregarded, one by the Pennsylvania and one by the Baltimore and Ohio Railroad Company. There is no compelling reason why others should not be. The commission itself, in the report for 1910, asks for an amendment to the creating law defining the force of a recommendation, and suggests that it be given the force of a court decision. The original bill as introduced into the House contained something of this idea, but it was weakened in subsequent readings. If this request of the commissioners were granted, the commission would immediately lose its purely advisory nature. The body itself realizes that it needs more power.

There seems to have been fear in the legislature that the commission was being granted executive, legislative, and judicial powers all together. But why should not this be so? As the Secretary of the New York Commission writes: "The theory of the public service commission statutes is that certain power of control over public service corporations formerly vested in the legislature is delegated by the legislature to the commission to be administered in accordance with certain very general rules established by the legislature. The authority of the commission is therefore legislative and administrative in character, and there is no more reason why its work should be of merely an advisory nature than that an act of the legislature or an ordinance of the Board of Health should be in the form of a recommendation to be carried out at the option of the parties affected."

Pennsylvania's experience may prove to be like that of Iowa, where an advisory commission was in existence for ten years. In three years no recommendation was disobeyed; it was successful in many minor ways. "But it failed just where control was most needed. It was powerless to check . . . discrimination."¹ Wisconsin experienced the same difficulty after 1876. "It is needless to say that the railroads were little interfered with in matters which vitally concerned the industrial interests of the state."² The original

¹ F. H. Dixon, *State Railroad Control*, p. 131.

² F. H. Dixon, in *Political Science Quarterly*, vol. 20, p. 684.

New York Commission also found its recommendations frequently disobeyed, and itself asked for power to apply to the courts for writs of mandamus.

What the future will bring remains to be seen. For the present, Pennsylvania has what may be called the old-fashioned type of regulating body. Perhaps it will follow in the end the example of the more progressive states, — among which may be ranked now not only Wisconsin, but the great neighbor and rival, New York, — and establish a commission with more stringent powers.

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